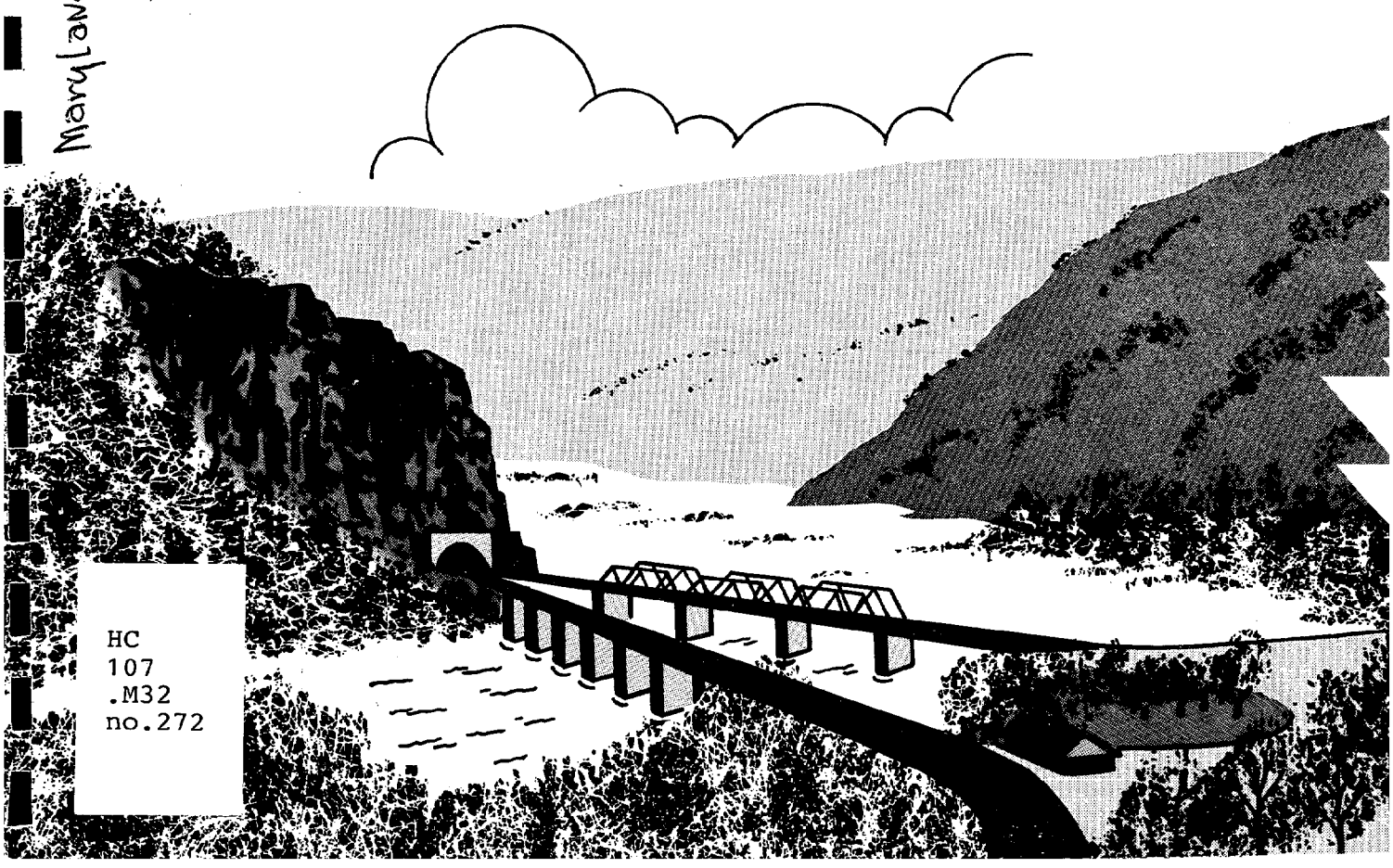
The Potomac Conference

TOWARD A POTOMAC ACTION STRATEGY

The Pre-Conference Report



POTOMAC CONFERENCE
AGENDA

November 4-5, 1976

Sheraton National Motor Hotel
Columbia Pike & Washington Boulevard
Arlington, Virginia 22204

Thursday, November 4

9:00 a.m. - 10:00 a.m.	Registration
10:00 a.m.	Welcome and Conference Objectives Vladimir Wahbe, Secretary Maryland Department of State Planning
	Keynote Speech Dr. Abel Wolman Professor Emeritus The Johns Hopkins University
11:00 a.m.	Federal Activities in the Potomac Basin
	Colonel G.K. Withers Baltimore District Corps of Engineers
	Representative Environmental Protection Agency
	Representative National Park Service
12:30 p.m.	Lunch
	Luncheon Speaker The Honorable Gilbert Gude U.S. House of Representatives
2:00 p.m.	Potomac Issues and Solutions
2:30 p.m.	Water and Land Related Discussion Groups
	The conference participants will form eight discussion groups: Water Supply, Water Quality, The Estuary, Water Recreation, Agriculture and Forestry, Urban and Major Public Facilities, Mineral Extraction and Land Recreation. Based on the Pre-Conference report the participants will discuss specific issues and recommended actions with the objective of evaluating, redefining, and for expanding these recommendations. Particular emphasis will be given to identifying potential impediments to successful implementation of these recommendations.

THE POTOMAC CONFERENCE

Toward a Potomac Action Strategy

The Pre-Conference Report

MARYLAND DEPARTMENT OF STATE PLANNING

Baltimore, Maryland 21201

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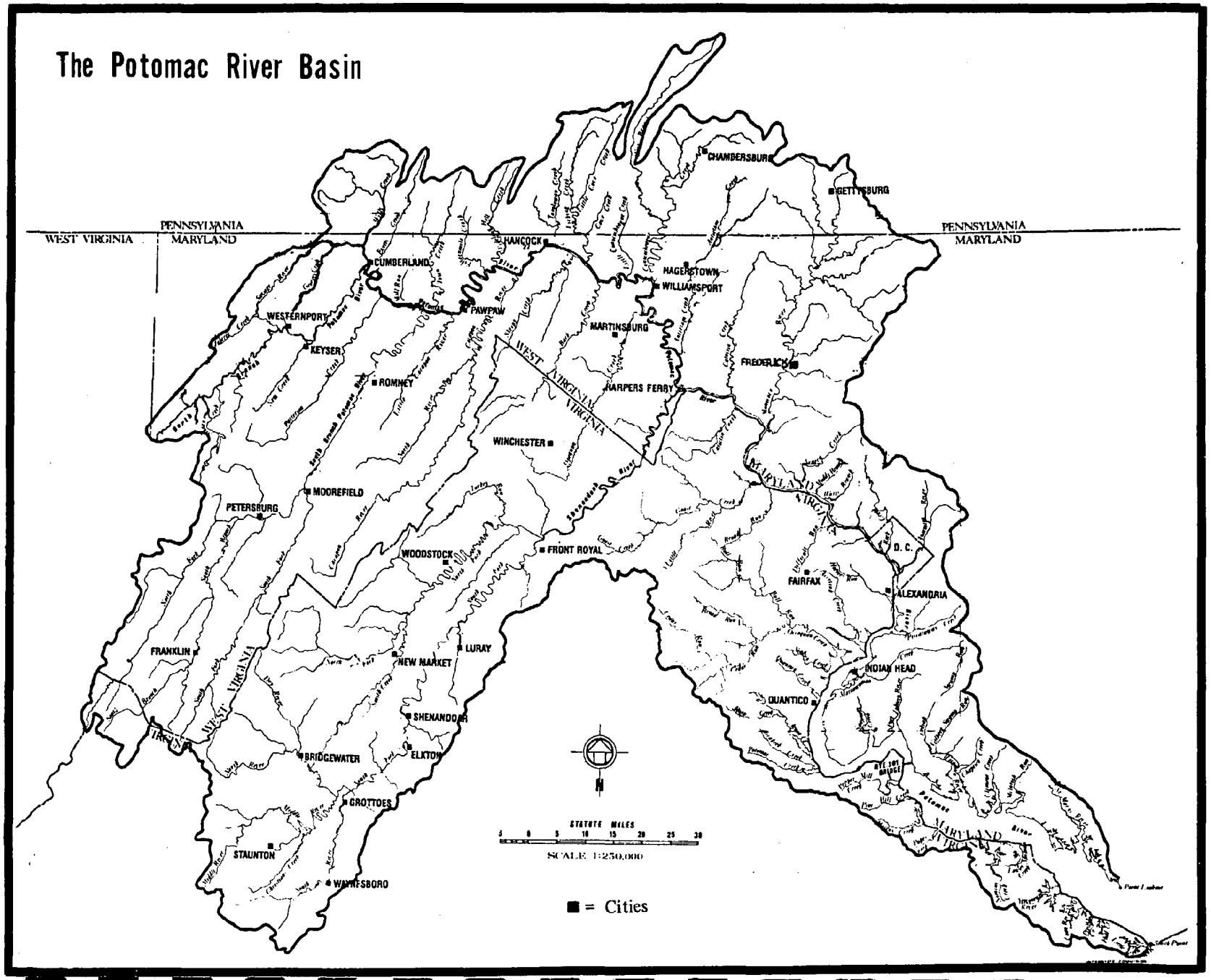
The Potomac River Basin
PENNSYLVANIA
WEST VIRGINIA
MARYLAND
PENNSYLVANIA
MARYLAND
CHAMBERSBURG
GETTYSBURG
HANCOCK
CUMBERLAND
HAGERSTOWN
WILLIAMSPORT
PAWPAW
WESTERNPORT
KEYSER
MARTINSBURG
FREDERICK
ROMNEY
HARPERS FERRY
WEST VIRGINIA
VIRGINIA
WINCHESTER
MARYLAND
VIRGINIA
MOOREFIELD
PETERSBURG
WOODSTOCK
FRONT ROYAL
D. C.
FAIRFAX
ALEXANDRIA
FRANKLIN
LURAY
NEW MARKET
INDIAN HEAD
QUANTICO
SHENANDOAH
WEST VIRGINIA
VIRGINIA
BRIDGEWATER
ELKTON
GROTTOES
STAUNTON
WAYNESBORO
STATUTE MILES
SCALE 1:250,000
■ = Cities

FOREWORD

The Potomac Conference and work associated with it, including the preparation of this document, is being financially aided through a Federal grant from the Department of Housing and Urban Development under the Comprehensive Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended.

Cooperating with the Maryland Department of State Planning and other Maryland State agencies in this effort are a number of governmental and non-governmental organizations. These include various departments and agencies of the Federal government, the District of Columbia, the Commonwealth of Pennsylvania, the Commonwealth of Virginia, the State of West Virginia, the Interstate Commission on the Potomac River Basin, the Potomac River Basin Advisory Committee, the League of Women Voters and a number of conservation groups.

Representatives of these agencies and organizations worked long and hard in their deliberations at the Pre-Conference meeting, and a number of them contributed to this project both before the meeting and since. This document, which is to furnish background for the Potomac Conference, owes much to this work and these contributions.

CHAPTER 1

THE POTOMAC

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THE POTOMAC

The Potomac River Basin is located in four states and the District of Columbia, reaches into nearly 40 counties and contains a large number of cities, towns, and villages. It stretches from the mountains to tidewater and includes within its boundaries some of the most scenic country and historic places in the East, if indeed not in the entire United States. It drains an area of 14,670 square miles. And it is home for 4 million people.

This population is increasing, and with it the use of land in the Basin is changing, all with a considerable effect upon the Basin's land and water resources. Urban areas are expanding; agricultural and forested areas are being encroached upon by residential, commercial and industrial development; the extraction of minerals, especially the mining of coal in the North Branch area, is becoming more intensified; the demand for recreational opportunities is increasing; more major public facilities, such as electric power generating plants, water purification plants, sewage treatment plants, and transportation routes, are needed. Increased pressure is being put almost daily upon the Basin's resources of land and water, and resource related problems, many of which are already critical, are steadily becoming more critical.

There are a number of problem areas which are closely interrelated with these changing patterns of land use. The use of land and the changes in land use have a direct effect on these problem areas; they, in turn, have an effect on present land use and the changes in land use which may come about in the future. Let us look briefly at some of them.

Water supply. This is probably the single most important problem area in the Potomac River Basin and the one which has the most far-reaching implications. It is becoming more difficult all the time for the Potomac River and its tributaries to supply sufficient water to meet demands. This is especially true in the Washington Metropolitan Area, but there are also other areas, such as the Verona-Staunton area in Virginia and the Frederick area in Maryland, which face, or soon will face, water shortages. And not to be overlooked is the increasing demand for water for supplemental irrigation.

The Washington problem is severe. In the summer of 1966, the flow of the river dropped to 388 million gallons a day. On July 18, 1974, 448 million gallons were needed to satisfy the needs of the Washington area. It is forecast that the population of the Metropolitan Area will increase from its present 3 million to more than 4 million by the year 2000, to 6 million by 2020. Should this, or anything like it, occur, the supplying of the additional water which will be needed will be a problem of considerable proportions.

There are a number of possible solutions. It is estimated that the Bloomington Lake Project, now under construction on the North Branch, will supply an additional 135 million gallons a day to the dependable flow of the River at Washington. For additional dependable flow from upstream sources, additional dams and reservoirs would be required. The Sixes Bridges Reservoir on the Monocacy River and the Verona Reservoir on the Middle River in the Shenandoah River Basin, both of which have been authorized for advance engineering and design, are several possibilities. Another possibility is the taking of water from the estuary, right on the doorstep of Washington. The estuary might supply from 300 million to possibly as much as 500 million gallons a day, but there are a number of questions concerning the use of water from the estuary, and until the proposed prototype treatment plant is built and

put into operation, they can hardly be answered with any accuracy. Still another possibility is the taking of water from ground-water sources, but this does not appear likely, at least to any significant degree, both because of the large withdrawals which would be required and the effect such withdrawals would have on other groundwater supplies. Before this is considered seriously, additional research is needed.

Water quality. Water quality is directly related to present land use and the changing pattern of land use in the future. From the headwaters to the estuary, the quality of the water in the river determines, to a large degree, the use which can be made of it and the land which abuts it. Also, the use which is made of the land has a strong, often an over riding, influence on the quality of water in the river. An outstanding example is the North Branch. There are many old, abandoned coal mines in this area, some of which have been draining into the North Branch and its tributaries for 150 years or more. Now, with the demand for additional fuel from domestic sources, coal mining is accelerating, with strip mining methods being almost universally employed. Reclamation laws governing stripping operations have been strengthened, and mine drainage pollution from present and future mining should be reduced considerably from past levels. But a still further reduction is needed.

Other major sources of pollution are raw sewage, the effluent from sewage treatment plants, and runoff from the land. Runoff from agricultural lands is likely to be contaminated by animal wastes (particularly where there are large numbers of animals, including poultry, concentrated in a small land area), by pesticide residues and fertilizers on the land surface, and by sediments. Animal wastes may contain pathogens, but perhaps more significantly, they have a high Biochemical Oxygen Demand (B.O.D.), which depletes the oxygen in the receiving stream, thereby affecting aquatic life. Pesticide residues

harmfully affect the tissues of fish, shellfish, and water birds. Fertilizers nourish luxuriant aquatic plant growth, often with harmful effects.

At present, an estimated 50 million tons of sediment enters the Potomac River every year, with a considerable amount of this reaching the estuary. This sediment can transport nutrients and cause algae problems as serious as those caused by the effluent from sewage treatment plants. It can smother oyster beds. It is deposited in navigation channels, requiring dredging in order to maintain adequate depths. Although neglected for some time in favor of more easily corrected types of pollution, the control of sediments is now receiving attention in the Potomac River Basin. There are new laws and regulations for the control of erosion and sediment. Efforts are being made to control erosion at construction sites. The erosion of agricultural lands is receiving increased attention. But funds for the control of sediments are limited when compared with funds for the control of waste water discharges. There is still much to be done. Existing and proposed programs must be supported, and the public must be involved.

Floods. Flood damage has not been as severe along the Potomac as it has been along some other rivers, but there are areas of concentrated floodplain development which have suffered and which continue to suffer. Prominent among these are the Washington Metropolitan Area, Cumberland and the area upstream from that city on the North Branch, and the Petersburg area on the South Branch. It is not possible to control floods completely, but it is possible to manage them so that damages are reduced materially and human suffering, which always accompanies floods, is alleviated. Fortunately, there are many alternative actions available, none of which in itself would furnish complete solution to the flood problem, but a number of which, when taken together, would reduce the problem substantially.

Engineering solutions include the construction of major dams and reservoirs, such as the Bloomington Lake Project; small headwater dams which may have a marked beneficial effect locally but are of little significance in reducing flood flows at major damage centers; and local protective works, such as levees, walls, and drainage improvements, which provide protection at specific locations. There are also management and institutional solutions. Among these are: watershed management, which treats the entire watershed in order to retard runoff; floodplain management, which controls the use of the floodplain; building codes, which govern the type of construction in flood-prone areas; flood-proofing, which provides individual protective measures for structures already located in the floodplain; and zoning, which governs the type of floodplain development and is related to floodplain management. To these can be added flood insurance, which serves to reimburse the property owner for flood losses.

Energy generation. The generation of electrical energy presents problems which are worth discussing in any look at the Potomac. Projections of future power demand in the Potomac area indicate that it will double in the next 10 years and that it will continue to increase. If this demand, or even a part of it, is to be met, more and bigger generating plants will be required. The construction of a number of additional plants is proposed or has been proposed in the recent past: at Point of Rocks on the main river, at Black Oak on the North Branch, and at Douglas Point on the estuary below Washington. The construction of such plants will have an environmental impact. Not only will they affect the local environment by their industrial presence, but they will require large amounts of cooling water which, when returned to the river, may affect aquatic life adversely because of its higher temperature. This is particularly pertinent to the Douglas Point area of the estuary, which is an important spawning ground for striped bass. Also to be considered, the con-

sumptive use of water incidental to power plant operations can have a significant effect on downstream water uses and needed freshwater inflows into the Chesapeake Bay.

Some special problems of the estuary. The Potomac estuary is a complex ecosystem fed by the upstream fresh waters of the river and the salty waters of the Chesapeake Bay. It is a fragile system which is influenced by many forces. The patterns of land use in the basin of the upper river, and the changes in these patterns, have a profound effect on the estuary, as do the patterns of land use along the estuary's shores. It is threatened by many of man's activities. Among its special problems are: the decline in fish and shellfish catches because of pollution and silt from upstream sources, which drive productive oyster beds ever farther down the estuary; the steadily increasing threat of accidental spillage of oils, chemicals and other deleterious substances, both during transport and at fixed locations; the pressure of development on wetlands; the increasingly difficult problem of the disposal of spoil from dredging operations; and the additional pollution resulting from the growing number of recreational boats. As with many other estuaries around the country, the time for positive action with regard to the Potomac estuary is now. Very little delay can be tolerated if the estuary is to provide a wholesome environment for man and his activities. The Chesapeake Bay Model, located at Matapeake, Maryland, and which includes the Potomac up to the head of the estuary, will be a valuable tool to aid in the solution of the problems of the Potomac estuary.

These are some of the problem areas in the Potomac River Basin, those which are related to the river but are also related to the land of the basin. There are others. Technological solutions, given the money and manpower, are relatively easy, but these problems reach into other areas where the solutions are often far from easy, such as institutional and political. Solutions must

be found, though, if the Potomac River area is to be developed and managed so that its resources of land and water are to be enjoyed to the greatest possible extent by all.

CHAPTER 2

THE POTOMAC CONFERENCE

THE POTOMAC CONFERENCE

Purpose. The purpose of the Potomac Conference is to consider the strategies which will lead to a broad action program for guiding the orderly planning, development, and management of the Potomac River Basin's resources of land and water. Discussions will be held and actions proposed which will contribute toward solving the many critical problems of the Potomac and toward averting future problems. Following the Conference, a report will be published. It will contain an analysis of proposals made at the Conference and will set forth the actions to be taken by those having responsibilities in the Potomac River Basin.

Background leading up to the Conference. The river and the land areas it serves have been the subject of concern and study for many years. A recent example is the 6-day-long hearing on Potomac problems held in June 1976 by the District of Columbia Committee of the House of Representatives. The Federal government, the several State governments, regional planning and special purpose organizations, and county and local governments have all been involved in one way or the other. There have been numerous task forces, study groups, and consultants engaged in these efforts.

Some of the efforts have been broad in scope, but many have been narrow, addressing individual elements which go to make up the resource-development fabric of the basin. Several are now underway, including a major study of mine drainage in the North Branch by the Corps of Engineers. However, those responsible for policy and for decision-making within the major units of government have not always been involved. A successful program for the

Potomac River Basin requires the participation of the chief executives and other elected officials of the major units of government and high policy-making officials of the appropriate State and Federal departments. Furthermore, many of the efforts, though by no means all of them, have been fragmented, representing a piecemeal approach to the problems and opportunities of the basin. This has led to many actions being taken without due consideration of the effect the actions may have on other parts of the basin or on other elements which make up the basin system.

The Potomac Conference will move toward correcting this by bringing together policy-makers and decision-makers at various levels of government who will address themselves to the problems of the basin and seek to develop strategies for dealing with them.

The Pre-Conference Meeting. In preparation for the Conference, a Pre-Conference meeting was held at Winchester, Virginia, on March 18 and 19, 1976. The function of this meeting was to assemble a group of persons who have knowledge of Potomac issues and problems so that they could discuss them freely, with the purpose of not only delineating these issues and problems but, also, of suggesting solutions to some and pointing the way toward the solution of others.

Recognizing the close and, indeed, critical interrelationship between land use and the basin's land and water resources, a number of different types, or categories, of land use were chosen for consideration at the Pre-Conference meeting:

Agriculture
Forest resources
Mineral extraction
Recreation
Urban
Major public facilities

Taken together, these categories cover the use of land in the Potomac Basin quite well. All of them are closely interrelated with the water resources of the basin.

Discussion groups for each of these categories explored their interrelationships with the critical problem areas of the basin and the problems with which they themselves are faced. Attention was directed, for the most part, to the economic, environmental, institutional and political problems involved rather than to the technological problems, although these were not neglected.

Later, all participants at the meeting met in a plenary session at which reports from each of the discussion groups were presented for general discussion. This enabled those who have broad interests ranging over a number of land uses to contribute to a discussion of issues and problems with which they were not involved in the specialized group discussions.

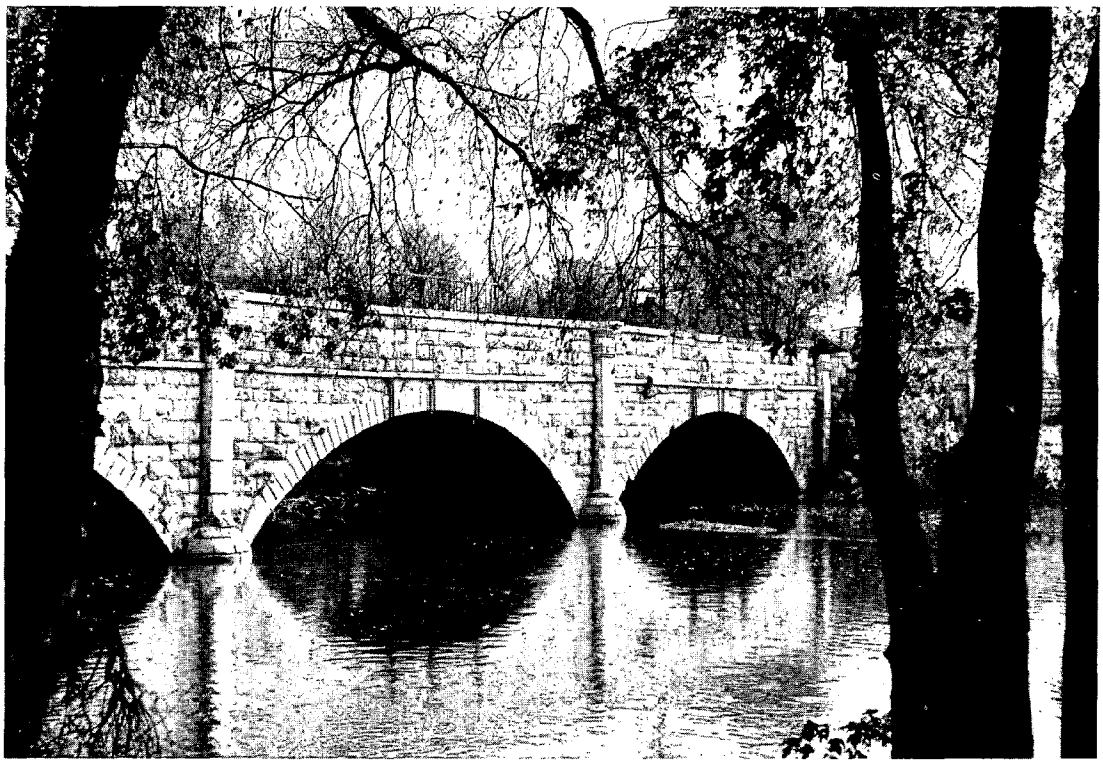
The 87 persons who attended the Pre-Conference meeting were selected so as to have a broad spectrum of interests and views represented. In attendance were representatives of Federal, State and local governments, regional bodies such as the Interstate Commission on the Potomac River Basin and the Potomac River Basin Advisory Commission, and public service organizations such as conservation groups and the League of Women Voters. All who attended took part in the group discussions and many contributed during the plenary session. A list of those who attended the meeting is given in the Appendix.

Scope and purpose of this report. In addition to the general overview of the Potomac River Basin and a brief outline of the organization of the Pre-Conference meeting, this report is concerned, in good part, with a discussion of land uses in the basin. Then the issues of the Potomac, as seen by participants at the meeting and as developed since through study of material from various sources, are presented, together with a number of action steps which

may be taken toward resolving these issues. And, finally, several directions are pointed toward arriving at a Potomac action strategy.

All of this is to form background for the Potomac Conference, so that those who attend the Conference may have for their use and consideration the results of discussion by a group of people who have knowledge of the Potomac and its problems, supplemented by additional material which could not be presented or discussed at the Pre-Conference meeting because of the restrictions of time. Several points of view are given on some issues as several points of view were represented at the Pre-Conference meeting or presented in the supplemental material which was referred to following the meeting.

CHAPTER 3



TOWARD A POTOMAC ACTION STRATEGY

T O W A R D A P O T O M A C A C T I O N S T R A T E G Y

The following discussions of the six land use categories which were selected for studying the land and water resources of the Potomac River Basin follow, for the most part, the discussions which took place when the groups met, and are enhanced by the general discussion during the plenary session. While the group discussions were separate, each addressing a specific land use, it is recognized that there is considerable overlap. In practice, they do not neatly divide one from the other. Land uses interrelate with one another, just as specific problems, such as water supply and water quality, interrelate.

AGRICULTURE

With some 40 percent of the Potomac River Basin's land under cultivation or in pasture, the manner in which this land is used determines to a very large degree the nature of the basin's environment, the quality of its waters, and the economic and social well-being of a considerable number of its people. Since food is fundamental to the health and welfare of all people, agriculture must always be a significant factor in the decision-making process regarding the use of resources.

The supply and availability of agricultural land. One of our major long-run concerns is the supply and availability of productive agricultural land for the production of food and fiber. Of the most serious concerns is the fact that this supply of agricultural land is decreasing. Urbanization and industrialization continue at an increasing rate and are spreading into more and more rural areas, usually taking productive agricultural land. All too

frequently, land which is the most desirable for farming is also the most desirable for highways, housing, shopping centers, industrial plants and other facilities which are the results of and the necessities of urbanization. This has already become one of our most pressing environmental and economic problems.

In discussing this problem, the Agricultural Group agreed that, while our present market system is generally preferable to strong government regulation, there are a number of pitfalls. This is especially true in that direct costs and benefits are, for the most part, automatically implicit in market place transactions. The speculative nature of many market place dealings is forcing land to be taken from agricultural use where the economic returns for doing so are shown to be greater. In Virginia, for example, during the past several years, approximately 100,000 acres of good land have been lost by agriculture each year, with about two-thirds of this going into speculation. All of this, of course, is not in the Potomac Basin but is spread across the State. It must be recognized that speculation, especially in land, is a part of the workings of our economic system. If productive land is to remain as agricultural land, more effective long-range planning and management are clearly called for, with consideration of the way in which agriculture fits into the total land use pattern of the basin and with special attention given to ways in which agricultural land can be preserved as a viable resource.

This matter is receiving attention in areas other than the Potomac River Basin. It was reported recently in The Atlantic that the State of Oregon has enacted laws to prevent the spread of suburbs onto farm land. If farm land is sold to a developer, it not only loses its lower tax rate, but the seller or buyer must pay the difference for the past 10 years between the rate based on the old farm assessment and the rate based on the assessment for its new use.

Preservation of productive agricultural lands. But why should agricultural land be preserved in the Potomac River Basin? Six reasons came out of the Agriculture Group discussions:

1. In food and fiber production, we have not reached the limits of technology in this country or in the world. New production methods will continue to be developed, increasing the yield from the land. But future increases in population and future increases in income will bring added pressure for additional food. In the long-run, then, more land must be brought into agricultural production, not less, and it would be foolhardy to reduce the excellent farm land of the basin without an over riding reason.

2. Agricultural lands can be used for the application of municipal wastes from urban areas, as a supplement to expensive, energy-intensive chemical fertilizers. Sewage sludge and waste water can be a valuable resource to farmers while allowing cities to reduce the cost of their waste disposal systems. Environmental regulations, coupled with the continuing rise in fuel prices, are working toward making many present municipal disposal methods more costly all the time. This practice must be used with caution, however, as experimental work by Pennsylvania State University indicates that it is evidently applicable only to special soil conditions.

3. Properly managed agricultural land produces less pollutants than many other land uses. Research is needed in this area, however, especially in the development of low-cost, non-persistent pesticides. Although soil conservation is practiced throughout the basin, an increase in soil conservation is called for in order to reduce the amount of sediments washed from the land. Good agricultural practices result in a good environment, with runoff from the land being of high quality; bad practices work in quite the opposite direction.

4. Agricultural lands have aesthetic values; they are generally scenic and aid in the purification of air.

5. Agricultural land will continue to be a source of tax revenue to local area governments, but, as noted above, here lies a problem, as more intensive development brings with it more tax income.

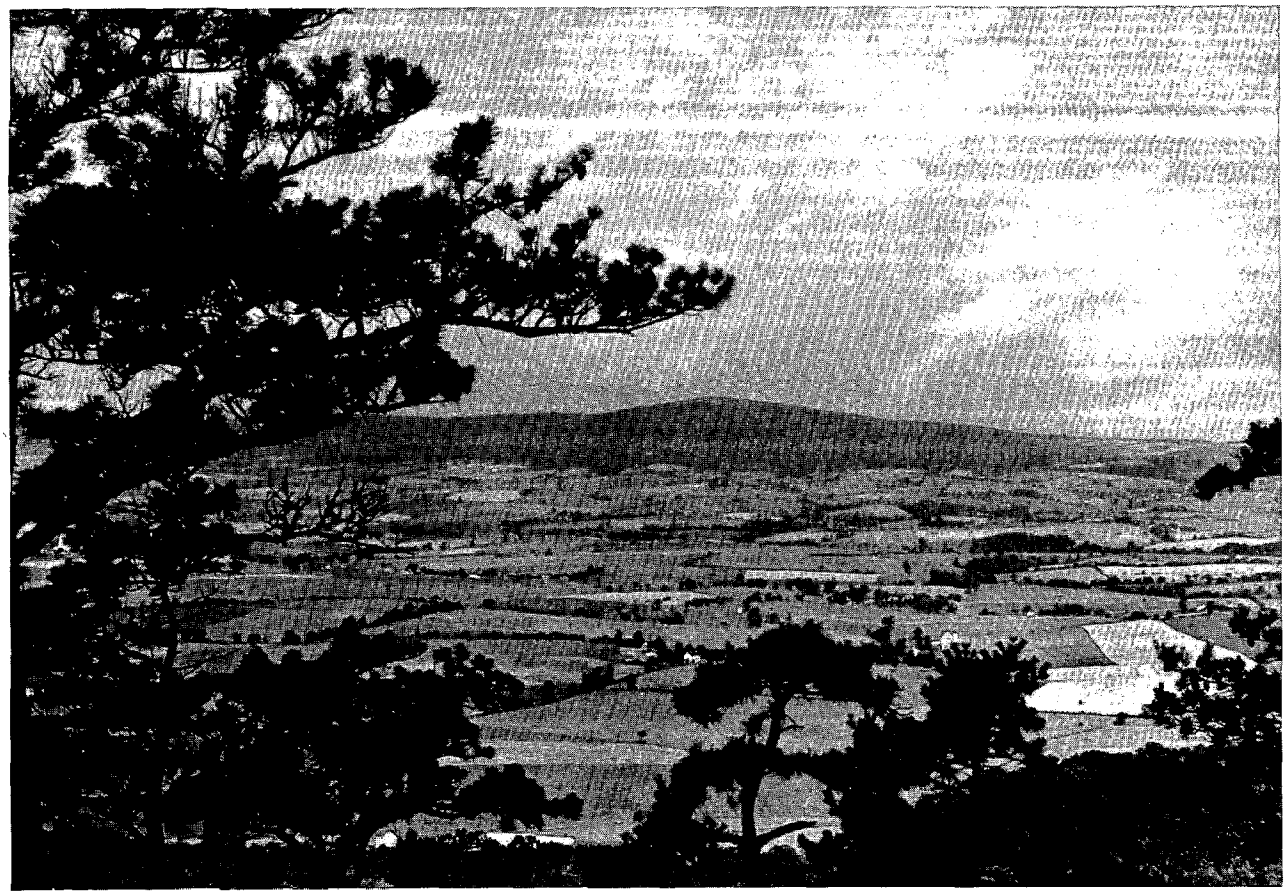
6. Possibly most important, agriculture keeps land use options open, thereby allowing flexibility for future decisions regarding the use of the land. This is a decided long-range advantage.

The condition of the farmer. If the above reasons are accepted, attention must be given to a number of problem areas, with a view to formulating policies which will encourage a viable agriculture. In doing this, it must be understood that the life and economic conditions of the farmer have changed in our modern society just as they have for everyone else.

The Agricultural Group then concluded that more attention and research should be devoted to our marketing system in order to find ways in which the consumer can purchase food at reasonable prices, with farm income simultaneously being increased; that mechanisms should be created through which farmers can obtain health, medical and retirement benefits comparable to those available to other workers; and that adequate funds and efforts must be made available for research into increasing agricultural production. The income and general welfare of the farmer are tied to a viable agriculture, which is important to the economic and social well-being of the Potomac Basin.

Other agricultural problems. There were other matters of policy which the Agricultural Group addressed, as follows:

Environmental and other controls and regulations should be more realistic, and perhaps they should be aimed at specific agricultural problem areas. Most present day regulations result in cost increases which the farmer has difficulty



passing on, and the aggregate effect of these regulations on the farming community should be analyzed.

Existing Federal programs which are meant to assist agriculture and the people engaged in agriculture need to be examined and, in many situations, reoriented to meet real agricultural needs.

Policies on real estate and inheritance taxes should be reviewed and, where necessary, revised. In many cases, they work to the disadvantage of the farmer's ability to keep land in agriculture and lead to the irrevocable loss of productive agricultural land.

The quantity, quality and flow of information to policy-makers and the general public must be improved so that the problems of agriculture are better

known and the decision-making processes can become more effective in dealing with them.

In today's closely integrated society, the farmer -- and with him, agriculture -- is an important member. Anything which affects him affects agriculture, and anything which affects agriculture has a marked and direct effect on society as a whole.

FOREST RESOURCES

The forests of the Potomac River Basin are important. Comprising 55 percent of the basin's area, the use which is made of them and the way in which they are managed have a decided effect on the basin's total environment. In addition to the production of wood fiber, forest use and management affect the quality of water in the basin's rivers and streams, its wildlife resources and its recreational opportunities. Any consideration of land use in the basin must include a careful consideration of this forest land, its present problems, and the problems which can be foreseen. Solutions to these problems must be found. A viable forest resource in the Potomac Basin, with all the benefits this resource possesses, depends upon this.

Forest management. Good forest management, with all that it includes -- watershed protection, wildlife habitat management, proper timber harvesting, even the regeneration of tree species which cannot tolerate the shade of larger trees--is important and needs to be improved in many areas throughout the basin, especially in private holdings.

The use of forest land for other purposes. But probably of greater significance is the present and growing tendency to exploit forest lands for other purposes. The nation's finest hardwoods grow in the forests of the Northeast, and the most productive growing areas must not be taken forever out of produc-

tion for development, particularly when, with thoughtful planning, other areas for the development may be found. Once an improper decision is made in the use of forest land, between 50 and 100 years are required to correct it if, indeed, it can be corrected at all. Complacency in this matter is ill-advised. It should not be thought that simply because such a large part of the basin is in forest, the invasion of this forest willy-nilly should be tolerated. When it is necessary to encroach upon forest land for development, all factors should be taken into consideration: timber yield, watershed management, wildlife habitat, recreation, open space, aesthetics and environmental quality.

In this regard, the use of forest land for recreational areas and the construction of second, or vacation, homes is to be looked at carefully. All too often, it is thought that because, for the most part, the trees are hardly disturbed, the forest, as a forest, does not suffer. But this use precludes many other uses, often while disrupting the watershed and hydrologic function of forest land. Then, too, second homes often become permanent homes with all the problems of continuous residence, such as day-to-day disposal of sewage. There is also a tendency toward increased absentee ownership of forest land for speculative purposes with, as a result, good forest management not always being practices.

This exploitation of forest lands for purposes other than forestry is fostered, to a large extent, by the belief that land is not a natural resource so much as it is a commodity. It can be bought or sold, kept as it is, or exploited, managed or neglected, as the owner decides. Right now, the market place, spurred by increasing population and an inflationary economy, puts pressures on an owner of forest land to turn this land to other purposes. In view of the return, particularly the long-range return, that he can expect from development, some offers are difficult to turn down.

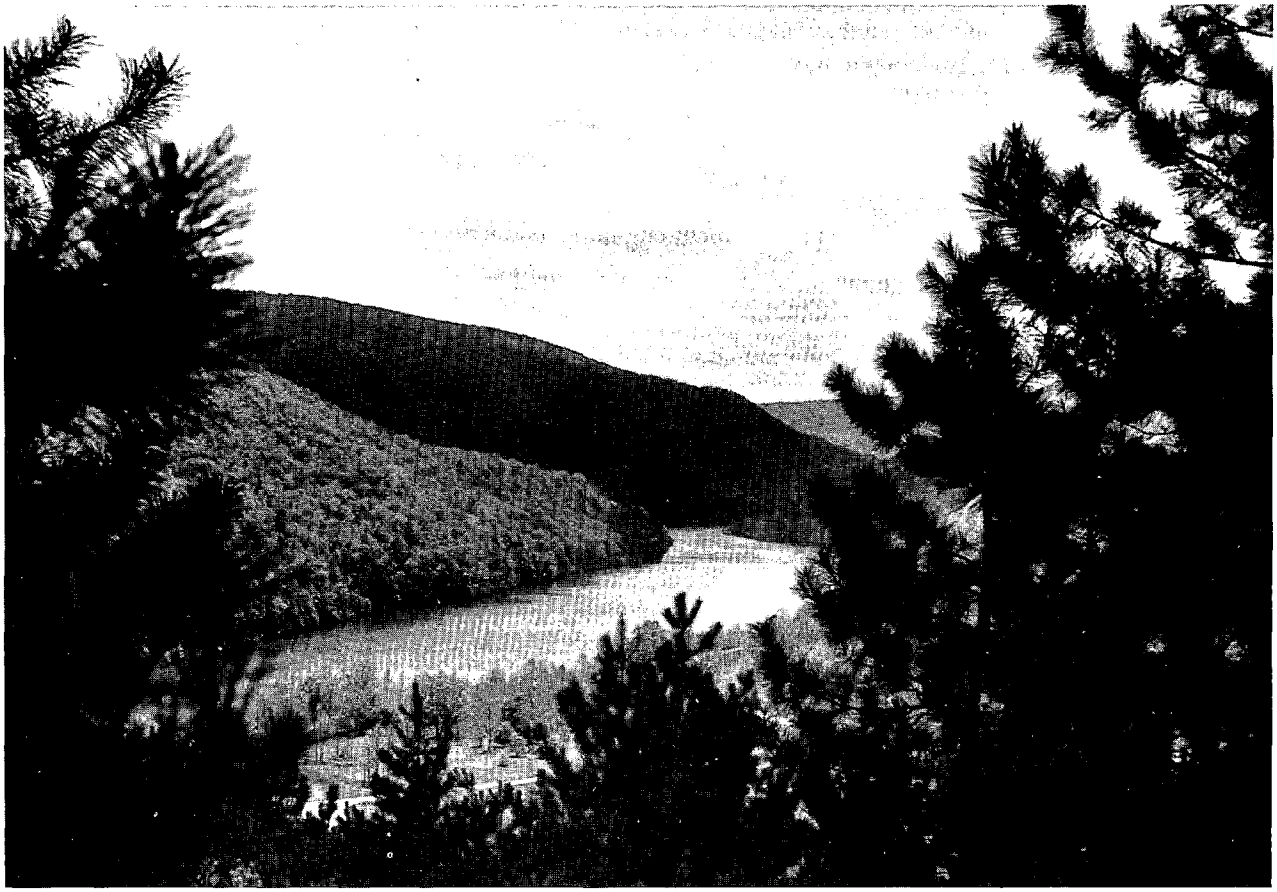
The tax situation does not help. When sub-divisions are developed and second homes built, additional public services are required, and the cost of these additional services can only be met by increased taxes, which means increased assessments. Forest lands in an area where assessments are increased for this reason are often caught up also in the increase. Then, too, the rising cost of government, coupled with a general increase in land values, has resulted in increased assessments. This puts a burden on an owner of forest land who is raising a long-term crop.

Steps toward preservation and management of forest land. Some jurisdictions have recognized this and have recognized also that there are a number of benefits the general public receives from the forests, such as aesthetic enjoyment, clean air, watershed protection, wildlife, and open space. In Maryland, the owner of 10 acres or more of forest can enter into an agreement with the Maryland Forest Service for a minimum period of 10 years. A forest resource management plan is prepared with recommendations which the owner is required to follow. While the contract is in force, the assessment on the land is frozen and remains so through any contract renewals. The contract can be transferred to a new owner of the property. If the contract is broken, however, the owner is subject to the payment of any taxes for which he would have been liable had he not had the contract, and this goes back to the original contract date. Virginia has a similar tax relief law, except that no land management requirements are involved and the rollback period on taxes is five years and not all the way back to the time of the original contract.

The Forest Resources Group discussed these issues and concluded that they need to be considered together, and not separately, as they interrelate with each other. Improved forest management is necessary in many areas, and private forest owners should be encouraged to take advantage of the professional help

which is available. Ways must be found to keep good, productive forest land in forest and not let it go into development, which will remove the forest forever. While a start has been made on tax relief, it must be considered that this is only a start, recognizing that the forests not only produces wood fiber but that there are many other benefits, as noted above. The forests of the basin contribute in large measure to making the basin a pleasant place in which to live.

All this will require education of the forest owner, the general public and those who are responsible for framing policy and making decisions. It may require additional legislation, ranging from local ordinances to State laws. In the drafting of such legislation, the Forest Resources Group felt strongly



that advice of resource-knowledgeable people, including professional foresters, should be sought. And the Group felt, also strongly, that foresters should take part in the land use decision process, especially as it relates to forest land. This has worked out well in Virginia.

Several questions regarding forests. Several questions were asked: How can local governments, with their limited resources, be involved in the planning, management, and regulation of forest lands? Is a forest subsidy a viable solution to the problem of compensating individual landowners for keeping land as a low-value resource base? And basic to the whole forest issue: How much forest is required to meet the demand for the products of the forest? As it is not possible to provide everything for everyone, what values must be sacrificed and how much? Answers to these questions are essential to land use planners and also to policy-makers and decision-makers.

MINERAL EXTRACTION

Although there are valuable mineral resources other than coal in the Potomac River Basin, fine and coarse aggregates and other quarry products, for example, coal is by far the most important and the one that causes the most problems in its mining. Coal is found in the North Branch area above Cumberland. There are two major fields: one, the Upper Potomac Field is drained generally by the North Branch itself; the other, the Georges Creek Field, is drained by Georges Creek, the Savage River and two small tributaries of Wills Creek. Active mining has been underway for 150 years or more. While production had been declining steadily, it has picked up lately with the impetus given by the increased emphasis on domestically produced fuels. Production in the area increased from 2.9 million tons in 1960 to 7.5 million in 1972 and is still rising.

It should be understood that the extraction of minerals is not only a legitimate land use but is often the most appropriate use to which certain lands should be put. The growth of our economy, and, in fact, the maintenance of its present levels, is dependent on it. With mineral resources being non-renewable, however, their wise use and prudent management, including management of the extraction processes, are necessary in order to insure a continuing supply to meet essential needs.

Mine drainage pollution. A major problem in the North Branch area is pollution. As a result of mining activity, approximately 130 miles of the area's streams are continuously polluted by mine drainage and an additional 30 to 40 miles are intermittently affected by acid "slugs" which are flushed from pools during periods of high runoff. This pollution comes not only from strip and deep mines now in operation, but to an even greater extent from abandoned workings and mine waste piles. The effect of the acid is to kill fish life and either kill or inhibit the growth of bacteria and related organisms upon which a stream depends for self-purification. The acid-laden waters produce ferric hydroxide, known as "yellow boy," which smothers the plant and animal life needed by fish for food, thereby causing fish to leave a stream even though the water quality itself might permit them to survive. Most of the streams in the North Branch area are sterile or are completely lacking in the variety of plant and animal life which characterizes a healthy stream.

Effect on the land. Mining, especially strip mine operations, also affects the land. It is estimated that for every acre from which coal is recovered by a stripping operation, three acres of land are disturbed by access roads, overburden removal, and spoil banks. Exposed spoil and waste areas and areas where revegetation has not taken hold properly add to the aesthetic impact of both active and inactive strip mining. Coal mining has been, and in many places still is, a serious land use problem.

Steps toward solutions. Solutions are not simple. Some abandoned deep mines, which contribute substantially to the Potomac's mine drainage problem, can be stripped, using the large earth-moving equipment which is now available. Others, where this is not possible or feasible, can be sealed. The drainage from still others, where neither stripping out nor sealing can be accomplished, requires treatment systems to neutralize acid discharges. There are also old abandoned mines that cannot be located, which complicates the problem of the treatment drainage. All of this is expensive.

In addition to the deep mine drainage problem, there is the potential threat to forests and urban developments from burning mines. The treatment of abandoned surface mines is not so difficult. Many can be restripped and reclaimed. The major problem is the availability of funds for reclaiming those which cannot be restripped economically.

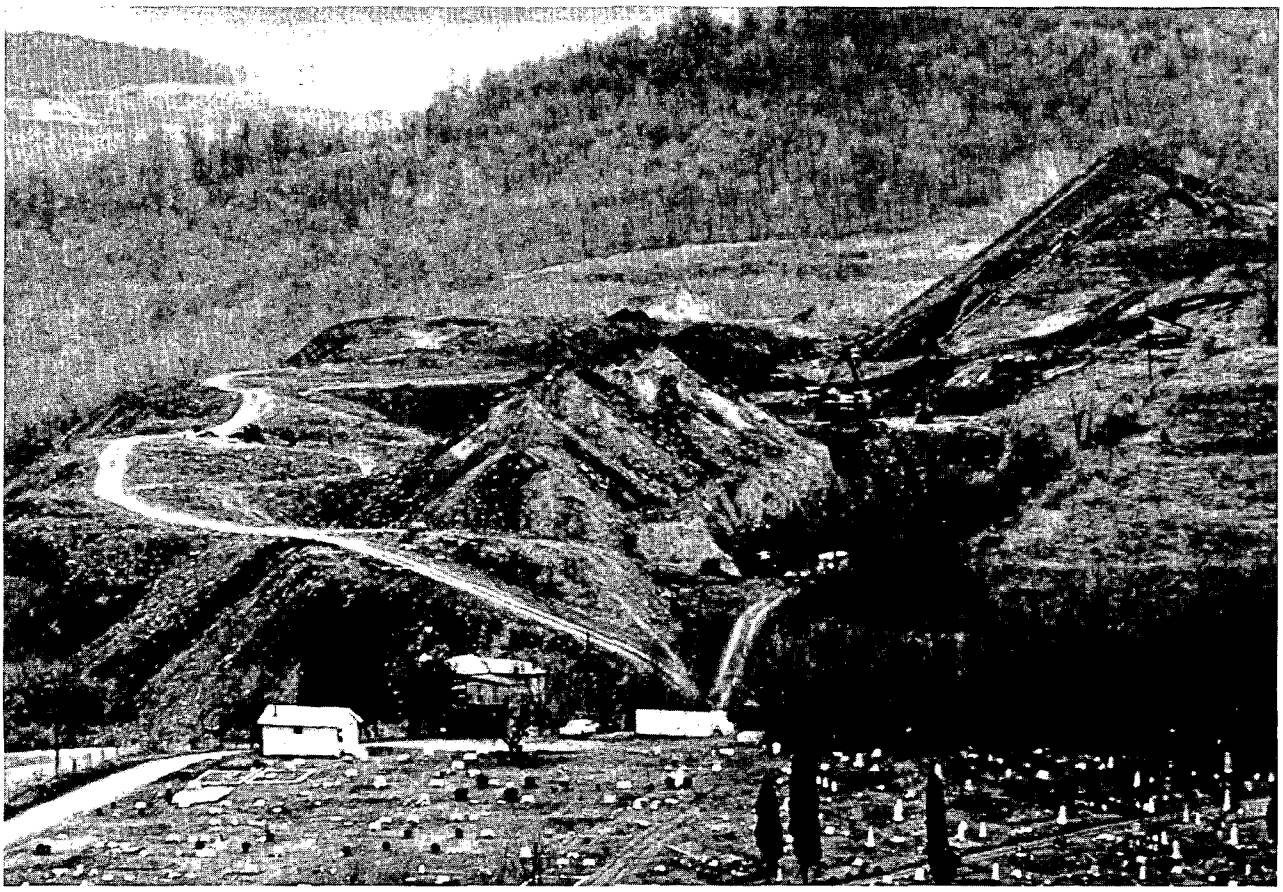
Corps of Engineers North Branch Study. In response to Congressional resolutions, the Corps of Engineers is conducting a study to determine "possible solutions to the critical acid mine drainage problems in the North Branch of the Potomac River Basin and the advisability of their adoption." It is being coordinated with the States of Maryland and West Virginia, the U.S. Environmental Protection Agency, the Appalachian Regional Commission, the U.S. Departments of Agriculture and the Interior, and the Interstate Commission on the Potomac River Basin. As any drainage from active mines is the responsibility of the mine operators, with the enforcement of abatement measures being the responsibility of the States and the Environmental Protection Agency, the study is concerned only with drainage from abandoned mines. It is scheduled for completion in 1980.

Land reclamation. Present technology, including the proper design and operation of strip mines and the land reclamation of mining areas, enables us

to prevent many of the problems of the past. The Mineral Extraction Group believes that along with this, existing laws and regulations are generally adequate, provided they are enforced.

In this connection, Maryland has established a Land Reclamation Committee, the principal function of which is to study, recommend and approve all procedures for the reclamation, conservation and revegetation of any area affected by open-pit mining within the State. This is not a bureaucratic group, rather it includes representatives of the mining industry, the public and the Soil Conservation Districts of Allegany and Garrett Counties, as well as key representatives of the State Department of Natural Resources. The State Geologist is chairman. The committee establishes plans, methods of procedure and practical guidelines for the prompt and adequate reclamation of all lands disturbed by the strip mining of bituminous coal and has published a Guidelines Manual for Surface Coal Mine Operators. Finally, the committee reviews the strip mining laws of the State to assure their compliance with State policy. The Mineral Extraction Group sees this approach by the Land Reclamation Committee as unique and suggests that it might be in the interest of other Potomac River Basin States to examine it.

Other mining problems. In addressing the problems associated with coal mining in the basin, the Mineral Extraction Group made a number of observations. There is a need for practical, rather than purely academic, research into solving the problems outlined above, leading to the question: What is the institutional framework for problem definition and for allocation of the research effort? As in other land uses, there is a need for continuing educational programs in order to provide a forum for changing attitudes and to foster citizen understanding of the problems associated with mining and the regulation of mining operations. If we need coal to meet energy needs, we



must live with drag lines and spoil banks, but ways must be found for doing this with the least detrimental effect on the environment. Here, there should be opportunity for citizens to see where mineral extraction is being done properly and where it is not being done properly.

Interstate cooperation in solving mining problems was discussed, with the suggestion that the Interstate Mining Compact Commission might be useful in exploring alternative institutional arrangements.

RECREATION

The increasing population of the Potomac region, especially in the Washington area, brings with it an increasing need for more recreational opportunities.

Hand in hand with this is the need for the preservation, as far as is possible, of open space, which is constantly threatened by population pressures. To add further to the problem is the fact that Washington has an influx of visitors as great as, if not greater than, any other city in the country. Most of them come to visit the Nation's Capital, but there is a spillover from the Capital area, with many of the visitors looking for recreation, either up the river or down.

There is already a large number of recreational opportunities, but more are called for. The estuary, with its 200,000 acres of surface area, offers a superb recreational potential, but action is needed in several directions to make the estuary more readily available and safe to use. Upstream from Washington is a number of parks, ranging from small to large and including such well-known ones as the Chesapeake and Ohio Canal National Historic Park and the Spruce Knob-Seneca Rocks National Recreation Area on the South Branch.

All of these receive heavy use, especially on week-ends. An even greater problem is the need for more access to the river. There is a need for a place to park your car, to launch your boat, to get out and walk -- or just to sit and watch the river flow by. This applies to both the estuary and the flowing river. It is particularly critical along the Virginia and West Virginia shores.

Access to the river. Several matters received special attention by the Recreation Group. One, of course, was the need for more public access to the river, with the view stated that such access points should be no more than three to four miles apart. There are several cautions, however. When access points are provided, there must also be provided the means for their regular maintenance. Also, there is a need for treating unique and fragile areas with special consideration when providing public access. Otherwise, they can be seriously damaged or destroyed.

The provision of access to the river, and, in fact, the development of other recreational facilities, is an opportunity for Federal, State and local governments. This includes the recreational use of what normally are non-recreational lands and the multiple recreational use of existing public lands. In this regard, local governments can follow local regulations, modifying them as may be found necessary. Despite their inherent problems, local regulations are generally more acceptable to local residents than are State and Federal regulations. Furthermore, properly designed and administered local land management is in the interest of the local people, and this should be recognized. The Recreation Group is of the opinion that agencies such as the Interstate Commission on the Potomac River Basin can assist local governments in the establishment of good local land use regulations. These should make provision for responsible private recreational investment as well as for public development, with such steps as may be necessary to protect the private investor, so that his enterprise can be successful.

Conservation of open spaces. As part of this local participation in the development of recreational facilities, or in conjunction with it, tax incentives could be used for the preservation of open space, as is done in connection with the granting of conservation easements. The availability of such incentives should be made better known and their values explained to landowners. These incentives could well be made more attractive. This would include some attention to State and Federal inheritance taxes which often make it very difficult for private landowners to retain open land.

This matter of open land conservation can be far reaching. The Recreation Group sees an opportunity for the basin States to consider a basin-wide growth policy so that the basin's resources will not be overtaxed by the multiple claims made on them. As a part of such a policy, strategies could be developed

and supported by the entire basin to encourage the rebuilding of already developed areas as opposed to new building on existing open lands. It is to the benefit of those who are interested in preserving rural open space to assist in the rebuilding of urban areas.

Urban recreational needs. The urban areas themselves are in need of recreational opportunities which are easily accessible and which therefore are readily available to urban dwellers, particularly those of low income. This is of special concern in the Washington area. A member of the Recreation Group suggested a broad program for the Washington waterfront which would include water sports, such as swimming and water skiing (This would require a clean-up of the river, at very great cost), boating, boat shows, river sightseeing tours and a marine recreation center.

A river constituency. A proposal of the Recreation Group is that a strategy be developed to identify and organize a river constituency for the Potomac, that the residents of the Potomac area be "Potomac people," sharing together the problems of Potomac living as well as the advantages. It was suggested that, as a step in this strategy, the legislatures of the basin States could consider authorizing a Potomac Regional Recreation License. This would be available to all residents of the basin and would provide equal access to all for hunting and fishing in the region. Residents of the Potomac area would then not have to pay non-residential fees in order to fish. There are, however, a number of objections to such a license. The States would suffer some revenue loss, and the already severe problem of over-crowding would become more severe, especially with regard to sportsmen. There are already some areas, particularly in West Virginia, where this problem is critical.

The Recreation Group felt that, with the exception of the regional license which would require legislative action, there are sufficient institu-

tional means already available for State and local governments to move forward with outdoor recreation and environmental conservation programs. Some modification of existing laws and procedures, as indicated above, may be required. But the means are there, and it is not necessary for recreation interests to wait for river-wide or basin-wide plans to materialize.

URBAN

Urban development and urban land use are intimately tied to the development and use of the Potomac River Basin's resources. While there are other urban centers, such as Frederick, Hagerstown, Cumberland, Charlestown, and Winchester, some of which have growing problems and all of which have urban problems of their own, the Washington Metropolitan Area, with its 3 million population, is by far the largest in its effect on the basin's present and future patterns of land use. The Washington area's increasing demand for water and its discharge of wastes, even though treated, have far-reaching effects. The problems associated with the occupancy of the floodplain, however, are not confined to the Washington area, but occur wherever there is development along the river. These problems are, for the most part, local, but they have been growing for quite some time and have become critical in some places.

Water supply. As noted earlier, the Washington water supply problem is severe. In order to meet growing demands, the development of additional supplies is necessary, either from upstream sources, or from the estuary, or from both. The Bloomington Lake Project, scheduled to be completed in 1980, will furnish an additional dependable supply, but the seven days which it takes for water released from Bloomington to reach Washington can make efficient operation difficult. The construction of other reservoirs, for which there are a number of suitable sites in the upper basin, has been generally opposed by local interests in upper basin areas. One possible solution to such an impasse may be that water be regarded as a saleable resource, with downstream communities, such as the Washington Metropolitan Area, purchasing water from upstream jurisdictions. Before the taking of water from the estuary can be seriously considered, it is necessary that the prototype treatment plant be constructed and put into operation so that questions concerning the safety of the estuary's water can be answered.

Water conservation. But no matter what, or how many, additional sources of water supply are developed, the conservation of water is needed. This can take several directions. The use of water-saving devices should be encouraged and, perhaps, required. In this, Federal action may be useful in requiring the use of water-saving devices wherever Federal funds are spent for housing. Also, plumbing codes could be modified in order to require such devices, and where these codes are governed by a State-wide code, as in Virginia, the State code could be modified so that local codes would not be inhibited. The pricing of water is another conservation tool. Higher rates could be charged for non-essential use and for excessive use, with the rate increasing significantly (not in small increments, such as 10 percent, but in larger increments on the order of 100 percent) with increased use. Unfortunately, many water pricing schedules now reduce the rate as use increases, thereby working against water conservation. Still another tool is education, with government at various levels, service organizations, and conservation groups taking part.

Urban and industrial waste discharges. The effluent from industries and sewage treatment plants, sediment from construction sites, and debris and litter washed from city streets all combine to contaminate the rivers and streams of the basin. Fisheries are affected adversely throughout the river system, shellfish areas in the estuary are smothered or closed because of pollution, water treatment processes are made more difficult and more costly, and recreational use of the river either is not possible or is seriously reduced. A possible solution with regard to industrial effluents is that a "resource utilization charge" be made as a means of having harmful residuals in the effluents reduced. This would place a charge on the release of harmful substances into a water course, such as the Potomac River and its tributaries. A side benefit would be that this would produce some revenue which could be

used for resource management programs. A disadvantage, however, is that such a charge in one State and not in another could cause an industry to change location. Such a concept should be nation-wide or, at least, region-wide to be effective; even basin-wide would hardly be useful unless there were over riding reasons for an industry to remain in a certain location.

Proper operation of treatment facilities. There are many other facets to the pollution, or water quality, problem. One which is often overlooked is that higher wages will have to be paid for environmental quality control and management, including, in particular, the operation of waste water treatment plants. No matter how up-to-date and well-designed a treatment plant is, it cannot be expected to turn out a high quality effluent unless it is operated properly, and this requires well-trained (and well-paid) operators.

Floodplain management. The methods which can be used for managing the floodplain are as noted in Chapter 1 of this report and are generally well know. Putting them into effect, however, is seldom easy. There are many forces which work against efficient and effective floodplain management. Local governments, for example, require as much tax base as possible for their support, and anything which tends to reduce the tax base, such as restrictions on the use of the floodplain, does not always meet with favor. Then, too, the floodplain is often interjurisdictional, requiring the cooperation of two or more jurisdictions for effective management. It would appear to be desirable to consider State laws regulating land use in the floodplain. This would make it possible to incorporate floodplain management into the regulations which govern the location of an industry. One thing which prevents local governments from regulating land use in the floodplain is the concept of the inherent rights of property. At what point do you compensate use of his

property? This is basic to effective floodplain management - in fact, to effective zoning or other restriction on free property use.

Solving urban problems. The Urban Group discussed these issues in a search for solutions. They saw that the problems and their solutions have a number of things in common: (1) a lack of money for implementation, (2) a lack of enforcement of existing laws and regulations, (3) no effective coordination between jurisdictions and programs, (4) a large array of vested interests in the basin, (5) planning which is for the most part functionally oriented, (6) conflicting objectives, and (7) a wide-spread need for the education of the public and of some government agencies. They felt that, by and large, the problems could be solved through improved coordination of existing institutions and better use and

management of existing programs. They found the administrative structure to be generally adequate, but falling short in coordination and funding. Some specific legislative actions, however are indicated, as mentioned above, especially in regard to building codes.

In the total context of urban land use, some incentives may be needed to induce economic development into areas where resources, particularly water supply, are still available and away from areas where the carrying capacity of the resources has been exceeded. An urban growth policy is needed. With respect to functional planning, regional agencies and local governments can overcome the problem to a great extent by intensifying their efforts to integrate their various planning activities.

MAJOR PUBLIC FACILITIES

The land use practices and problems associated with major public facilities, such as electric power generating plants, water purification plants, sewage treatment plants, and transportation routes, have many of the characteristics of those associated with urban areas, and it was natural that there would be a number of overlaps in the discussions carried on by the Major Public Facilities and Urban Groups. This is especially true in connection with water supply and waste disposal.

Long-term planning. By their very nature, major public facilities are designed to meet long-term needs and require long-term planning based, as all planning should be based, on adequate data. All too often, there are not available the data which are required to study choices in the selection of major public facilities and to minimize the conflicts which sometimes arise out of proposals. This contributes to procrastination on the choice of facilities and their sites and can limit future options. But inadequate data

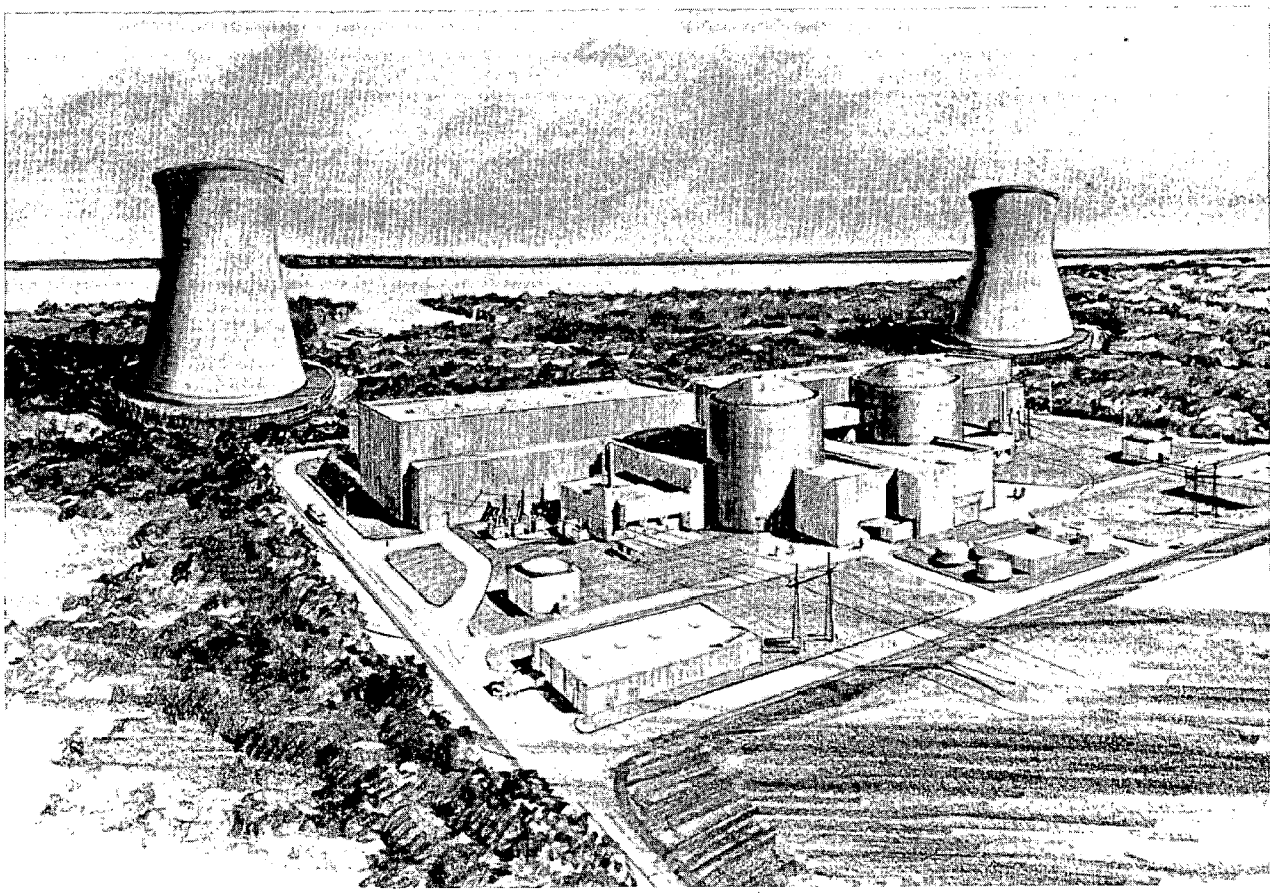
alone do not cause procrastination; there are often other delays, many of which can be avoided by timely planning. The result is often crisis planning and crisis execution of plans in order to meet crisis situations.

Site Selection for major facilities. A most important benefit to be realized from the timely planning of major public facilities to meet future and long-term needs is that sites can be selected and acquired before they are pre-empted for other purposes. The Maryland Power Plant Siting Program is an important step in this direction. Under it, advance selection and acquisition of sites for electric power generating plants may be made, with the aim of not only selecting sites for the construction of plants to meet future energy demands but selecting sites which are environmentally acceptable. The Major Public Facilities Group felt that consideration should be given to extending this program, or one similar to it, to other States in the basin. In this same context, such a program of environmentally acceptable site selection could be extended to major industries, some of which are detrimental in themselves to the environment or have the potential for being detrimental. This raises several questions which call for hard answers. What alternatives are there to an environmentally undesirable site? How big a part should economics play in site selection when a site which is less costly to develop and operate will result in environmental damage?

The advance acquisition of sites for certain major public facilities, such as electric power plants, dams, and highways, and proposals for them are usually met with opposition in the areas where the facilities would be built. Receiving little, or no, benefits from these facilities, residents of these areas are often reluctant to part with their land and to have their locality invaded by what is to them an undesirable and alien presence. This requires an educational program aimed at both citizens and

public officials, and the best effort possible must go into such a program. As long as water flows from a tap in Washington, for example, many people in the upper basin see no reason for having a dam in their valley.

As many major public facilities serve areas beyond their immediate locations and have an impact which extends beyond their neighborhoods, a key issue is whether they should be planned on a basin-wide basis or planned by separate jurisdictions, even though these jurisdictions may be regional in scope and not local. A basic question raised by the Major Public Facilities Group is: are existing institutional arrangements adequate to implement and enforce solutions or should a new regional entity be set up which could accomplish cooperative planning and have implementation capabilities as well as enforcement authority? For such a regional entity to be effective, local governments



would have to realize that trade-offs and compromises would have to be made and that this arrangement may be advantageous to them even though it would mean giving up some of their individual prerogatives.

In contrast to the Urban Group, which felt that the basin's problems could be solved through improved coordination of existing institutions and better use and management of existing programs and mechanisms, the Major Public Facilities Group saw the need for a basin-wide institutional arrangement which can set basin-wide goals and work effectively toward attaining them. Without setting goals, it is not possible to establish priorities, to make choices between conflicting uses, and to determine whether a facility is needed and when it is needed.

SUMMARY

In the foregoing discussions, a number of issues stand out. Some of them may be resolved through the use of existing institutional arrangements or the modification of such arrangements, while others may require more far-reaching means for their resolution. They are as follows:

Agriculture.

1. Long-range land use planning is needed to aid in the preservation of prime agricultural land.

2. Tax reform is needed, especially with regard to inheritance taxes.

3. Research is needed for increasing agricultural production, the development of non-persistent pesticides, the better use of fertilizers, etc.

4. Environmental and other controls, as they pertain to agriculture, need to be reviewed.

5. Attention to the general welfare of the farmer is needed.

Forest Resources.

1. Long-range land use planning is needed to aid in the preservation of forest land, especially that of higher productivity.

2. Tax reform is needed, especially with regard to property and inheritance taxes.

3. Improved forest management is needed in most privately-owned woodlands.

4. Forest subsidies need to be considered, taking into account the public values of forest land.

Mineral Extraction.

1. Action is needed to reduce mine drainage pollution from abandoned mines.

2. Laws and regulations pertaining to the operation of active mines require continuing review to meet changing conditions. The Maryland Land Reclamation Committee can serve as an example of other basin States.

3. Interstate cooperation in solving mining problems is needed, with the Interstate Mining Compact Commission as a possible coordinator.

Recreation.

1. Local, county and State interests need to provide more access to the river and more small recreational areas, modifying laws and regulations as may be required.

2. Special attention to recreational opportunities for urban dwellers is needed.

3. Tax incentives are needed for open space preservation.

4. An overall Potomac recreational strategy is needed, with all jurisdictions participating.

Urban.

1. Water for water supply may be considered as a saleable resource.

2. Plumbing codes may need modification to require the use of water-saving devices.

3. Water pricing policies need to be reviewed with the aim of conserving water.

4. A resource utilization charge may be considered with the aim of reducing the discharge of untreated effluents.

5. Laws and regulations covering floodplain use need to be strengthened, possibly on a uniform State-wide basis.

6. Incentives are needed to induce economic development in areas where resources are available.

Major Public Facilities.

1. Long-term planning is needed for major public facilities, especially with respect to siting. The Maryland Power Plant Siting Program can serve as an example for other basin States. This might be modified to extend to major industries, which also have an environmental impact.

CHAPTER 4

POTOMAC ISSUES AND MECHANISMS FOR AN ACTION STRATEGY

POTOMAC ISSUES AND MECHANISMS FOR AN ACTION STRATEGY

As the summary at the end of the preceding chapter shows, there are many issues in the Potomac Basin which call for attention, some of which may be solved through the use of existing institutional arrangements. Some of these issues are urgent and should be addressed immediately if the resources of the basin and the well-being of the basin's people are not to suffer. Others may not be quite so urgent, but they must not be overlooked or put off for too long a time.

Tables 1 through 5 set forth a number of issues pertaining specifically to the individual land use categories, each table being concerned with a separate category. As the Urban and Major Public Facilities categories overlap to some extent, they are combined for this purpose in one table. Table 6 lists the issues which are generally common to all categories. The issues presented in the tables are those considered important at the Pre-Conference meeting. There are, of course, others. But if those presented here are considered at the Potomac Conference and positive steps taken toward resolving them, the objectives, which are set forth, are possible to achieve.

In addition to setting down the various issues and the objectives which are hoped to be achieved, the tables lists a number of action steps which may be taken toward reaching these objectives and the participants who would be involved in each step. The action steps are separated into those which can be taken immediately, using existing institutional arrangements and mechanisms, and those longer-range action steps which will require new mechanisms or changes in institutional arrangements. The participants are those who are affected,

one way or another, by the issues or by the means taken toward resolving them. They may be governmental entities at various levels, non-governmental interests, or even private citizens who would work toward solutions or who would be directly affected by solutions.

A number of threads that were of common interest ran through the discussions of Potomac issues at the Pre-Conference meeting. No matter what category of land use was being discussed, it was generally agreed that (1) more and better education of the public and public officials is needed, (2) there must be some reconciliation of different views leading to better understanding between conflicting interests, (3) the land of the basin must be seen as a natural resource and not just as a commodity, (4) the waters of the basin must be seen as a treasure to be used with care, and (5) the many issues of the basin must be put into perspective and not viewed simply in the light of how the basin and its people are affected by them today. These are discussed briefly in the following paragraphs.

Education. Education in Potomac issues and opportunities is important. A good job is now being done in this area by a number of organizations, such as the Interstate Commission on the Potomac River Basin. the Potomac River Basin Inter-League Committee of the League of Women Voters, and the various conservation groups, and this must be continued and should, in fact, be stepped up. For one thing, it is difficult to maintain continuity of understanding of Potomac problems as there is a continuous turnover in elected officials, government agency personnel, and even the officers of conservation groups and public service organizations. Education must, therefore, be continuous, and educational and informational programs must be repeated, time and again. All of this must be done with as much expertise as is available. In this connection, it should be understood that if local governmental bodies and private

landowners are to carry out certain actions, they must receive, and must be willing to receive, technical assistance, as they often lack "know-how." This assistance can extend throughout all levels of government, from local, through county, to State. In the drafting of regulations and legislation, for instance, the services of knowledgeable resources professionals should be used. An example of how this is now being done is the Maryland Land Reclamation Committee which reviews the strip mining laws of the State and gives advice as to what revisions may be required.

Reconciliation of different views. For decisions on the use and development of the land and water resources of the basin to be effective, the reconciliation of the views of the various interests of the basin is required. It is natural that each group, locality, and region should hold its own interest foremost, and this should be recognized. This calls, then, for the leaders of the basin and for the various organizations interested in the well-being of the basin use their efforts in coordination and in the resolution of conflicts. Planning sessions are needed in which there is a mingling of resources experts in various fields and others, not necessarily expert, who can identify and evaluate trade-offs and conflicts in land use proposals. A step in this direction is to involve citizens and local governments in the early stages of planning. This will aid in the acceptance of land-use management plans and is essential for their success. Meetings between professionals and citizens, or between higher levels of government and local government, must be seen as a two-way street. The expert professionals should recognize that much can be learned from the local people who are directly involved in land use and other programs. In this regard, it should be understood that representatives of local government, being familiar with local problems, can contribute much in a planning discussion with professional planners. This means participation in planning by

those at the "user level," those who directly use the lands and waters of the basin.

Land is a natural resource, not just a commodity. To many landowners, land is a commodity to be bought or sold as the owner may wish. And with the pressures of population growth, urbanization, and industrialization, the use of land in the Potomac Basin is changing, with low-intensity use, such as agriculture and forestry, giving way in many places to housing developments and industry. As prime agricultural land is also prime land for these other uses, it is being lost as an agricultural resource. The farmer, or the forest owner, faced with increasing living and operating costs and with the price he gets for his product hardly increasing commensurately, is subject to the pressures of the market place. As discussed in the preceding chapter, action is indicated if land is to be regarded as a resource with many benefits in addition to those for which it is directly used. If we do indeed regard the land in the basin as a resource, we must answer such questions as: What land resources do we have? What do we actually need? What actions should be taken to keep this resource?

Water is a treasure. To say that the waters of the basin are a treasure appears trite, but it is true. All through the discussions ran the thread of the need for water of good quality and in sufficient quantity to meet the demands imposed upon it, both now and in the future. For too long, Potomac water has received too little care. Its quality and quantity have been the subject of many studies, much discussion, and a needless amount of conflict. It is a partner with the land, and the economic and social well-being of the basin's people are tied to both.

Perspective. The issues of the basin must be viewed in perspective. This does not mean that critical present-day issues should not be met and dealt with promptly, but that there must also be in our planning a view toward the future.

In addition to deciding what the needs of the basin are today and taking steps to meet those needs, it is necessary that the prospective needs of, say, the years 2000 and 2020 be formulated and that there be long-range planning to meet those needs. As these dates are approached, it will be seen that previously-forecast needs have changed to some degree, but it is not too difficult to revise long-range plans which have already been made. Furthermore, as has been noted earlier, when long-term plans call for sites for engineering works, such as a dam or an electric power plant, the sites may be acquired before they are pre-empted for other uses. There are far too many examples of development requiring adjunct facilities and there being no sites for the facilities because the development itself had used up all the suitable sites.

Objectives for Potomac issues. The tables list a number of objectives for each category of land use and for those issues common to all categories and a number of action steps for achieving these objectives. How can these steps be taken? Are the institutional arrangements now in existence in the Potomac area sufficient for reaching these goals? Or are new mechanisms needed? And if so, what new mechanisms?

In the Journal of the American Water Works Association in July 1957, Abel Wolman said that "one will not frame a policy or convert it into action unless there appears to be not only a reason for doing so, but a dramatic reason for doing so." He continued by saying, "In other words, we must begin to see the penalty of not doing so before we are willing to accept a policy."

Certainly, many of those at the Pre-Conference meeting saw that a definite policy, or strategy, is necessary for the Potomac River Basin, and that we have come to a time in the history of the basin (with drought some years and floods others, with pollution from mining and other sources, with increasing threats to the estuary, with major changes taking place in land use, with increasing

demand for recreational opportunities) where we have had dramatic reasons enough for framing a policy, accepting it, and putting it into action. There were, however, differences of opinion as to what is needed and what means should be used for accomplishing it.

Mechanisms for a Potomac Strategy. A number of mechanisms are available for framing a Potomac action strategy and for putting it into effect: (1) making the best use of existing institutional arrangements for more effective and more prudent use of the basin's resources, modifying them as may be necessary to meet developing conditions; (2) having a formal overall institutional arrangement, such as the proposed Potomac River Basin Compact, together with the basin organization which would go with it; (3) coordination of programs and cooperation among the States, District of Columbia, and the Federal government without the formality and institutional arrangements of a compact; and (4) having basin-wide conferences in which serious interests can get together to discuss interrelated and interjurisdictional issues and problems, with a view to having desirable political and other actions taken. There is a wide range here from the formal to the informal, from using existing means to setting up a basin organization.

Existing institutional arrangements. There was a wide feeling at the Pre-Conference meeting that, by and large, existing local, State and Federal institutional arrangements, as defined by existing laws, regulations, and controls and as implemented by existing organizations, can be used effectively in meeting present and future basin needs. Some modifications are needed and some new legislation is needed. Special attention should be directed, for example, to modifying tax laws and procedures, particularly as they apply to agricultural and forest lands, and to modifying existing laws or to enacting new legislation having to do with building codes and the use of the floodplain.

But it was felt that many of the tools which are needed are already available; it is just that some of them need to be sharpened so that a better job can be done with them. And along with sharpening these tools, more skill is needed in their use. Prompt attention to this is clearly called for.

Federal legislation affecting the Potomac. An important part of the existing institutional arrangements is Federal legislation which affects the planning, development and management of the Potomac's resources. In 1940, the Congress established, through the Interstate Compact on the Potomac River Basin (not to be confused with the proposed Potomac River Basin Compact), the Interstate Commission on the Potomac River Basin, the general functions of which are to collect data, sponsor studies, promote uniform laws, recommend standards, and provide public information. The compact was ratified shortly afterwards by Maryland, Pennsylvania, Virginia and West Virginia, all of which became members of the Commission. The Federal Water Pollution Control Act, with its amendments, relates, of course, to the control of pollution in the river. Among pending legislation are the Interstate Environment Compact Act and the Potomac River Historical Area Act of 1975. The signatories to the proposed Interstate Environment Compact are "to assist and participate in the national environment protection programs as set forth in federal legislation; to promote intergovernmental cooperation for multistate action relating to environmental protection through interstate agreements; and to encourage cooperative and coordinated environmental protection by the signatories and the Federal government, "while preserving and utilizing the functions, powers, and duties of existing state agencies of government to the maximum extent possible." The Potomac River Historical Area Act would create a national river within the Potomac River Valley to maintain the shorelines for aesthetic and recreational purposes, to protect the Chesapeake and Ohio Canal, and to preserve the floodplain of the Potomac River.

The Potomac River Basin Compact. The Compact, drafted by the Potomac River Basin Advisory Committee, is an effort to provide a permanent interstate institutional arrangement, together with a suitable organization, for the planning, development, and management of the water resources of the basin. A summary of the proposed Compact is given in Appendix 3.

The proposed Compact has not, however, been accepted by West Virginia and Pennsylvania, although Pennsylvania has remained active in the workings of the Advisory Committee. The Advisory Committee concluded that, despite the lack of unanimity among basin jurisdictions, there is a strong need for an effective Potomac Basin institutional arrangement among Virginia, Maryland, the District of Columbia and the Federal government, and it has modified the proposed Compact to include only a segment, or "region," rather than the entire basin. This modified compact, known as the Potomac Water Resources Regional Compact, or the "Mini-Compact," would go into effect upon acceptance by Virginia, Maryland, the District of Columbia, and the Federal government. The way would be left open for West Virginia and Pennsylvania to enter into the arrangement at any time they might desire, and during the period when they are not members, they would be invited to send official observers to Compact Commission meetings.

It is important to note that the proposed Compact,(both the full Compact and the "Mini-Compact,")is concerned primarily with water resources and not with land use, although it contains an article (Article 7) which deals with watershed management and another article (Article 9) which is concerned with an amenities plan for the Potomac. Article 7 states that "the Commission shall promote sound practices of watershed management throughout the compact region, including but not limited to, soil conservation, the control of surface runoff and prevention of erosion, the improvement of the quality and yield of water, land reclamation and sound land and forest management, and the maintenance and

improvement of fish and wildlife habitat." Article 9 provides for the Commission to adopt "an amenities plan and program for the development and preservation of the aesthetic, scenic and historic values along the Potomac and its tributaries." Should the Compact become effective, it is to be hoped that positive steps are taken in this direction.

It is also important to note that except for supplying water for agriculture and promoting sound watershed management, the Compact has no designated powers or responsibilities in regard to agriculture and forestry. Also, while the Compact Commission may delineate floodplains and may review and comment on proposed development in the delineated areas, it may not specifically manage floodplains.

A Potomac action strategy must be concerned with more than the planning, development and management of the water resources of the basin, as important as they are. It must be concerned, also, with the economic, institutional and political implications of the changing patterns of land use.

Coordination and cooperation. If it is desired, or -- more to the point -- if it is necessary, to retain the institutional arrangements now in effect in the various agencies and jurisdictions in the Potomac River Basin, it is necessary, for the efficient development and management of the basin's resources, to devise a coordinating procedure. There is already a formal process of coordination and cooperation between State and Federal programs and actions, and this needs to be extended to the several States and jurisdictions within the States. To be effective, this would require that agreements be entered into. Taken to a conclusion, such agreements would approach the provisions of the proposed Compact except that there would not be a basin-wide organization as provided for by the Compact. Each of the States would be responsible for the initiation and execution of its programs and actions would be coordinated

with other States and localities which may be affected. The same thing would apply to sub-divisions within a State. Without a central coordinating body, this would be difficult, and it is likely that programs would sometimes be initiated and actions taken without the desired coordination taking place, if only through inadvertence.

Coordination may be achieved in several ways. It can be by communication and meetings as may be required for coordination between agencies and jurisdictions for the discussion of specific programs and issues. It can be by the establishment of a coordinating network in which there are certain prescribed procedures to be followed to assure that the desired coordination will take place. It can be by a formal coordinating body, with each jurisdiction represented, which would meet on a regular basis for a discussion of basin issues and problems and a coordination of programs and actions. Staff members familiar with details would also be present. One advantage of this is that joint programs by two or more jurisdictions can be put into effect promptly and with a minimum of difficulty. Another advantage is that people, including staff members, from different jurisdictions will become acquainted with each other and with each other's problems.

Basin-wide conferences. Basin-wide conferences, held at periodic intervals, would bring together the various basin interests and present an opportunity to discuss interrelated basin problems. Such conferences can be helpful in discussing issues, pointing directions, and marshaling support for needed programs and legislation. They foster coordination and cooperation.

To be effective, these conferences must be well-planned and attended by those who have authority to frame policy and make decisions. There must be, just as in the coordinating procedures discussed above, a willingness to give and take, to see the basin - or at least a significant part of the basin - as

a whole, and to surrender some prerogatives, if need be, if the basin's goals are to be realized as a result. While guidance must be furnished in the presentation of issues to the conference, care must be taken that there is ample room for independent thought and discussion.

Discussion. Several of the mechanisms outlined above can be used together effectively. Should the Compact, or some similar arrangement, be decided upon as the best means for framing and executing a Potomac action strategy, first on a regional and later on a basin-wide basis, some period of time will be required to put it into effect. Even after it is approved by the several jurisdictions which would enter into it, time would be required to appoint the commission, recruit key personnel, and set up an organization. In the meantime, existing institutional arrangements must be used for achieving desired ends.

Some of the Potomac issues, in fact, can be dealt with satisfactorily through the use of existing institutional arrangements, or mechanisms, with no changes required. With others, existing mechanisms require modifications in order that they may be used effectively. With still others, new mechanisms may be required, whether they are procedures for effective coordination or more formal, and more highly organized, arrangements, such as a basin-wide, or region-wide body.

Along with a consideration of the issues and the action steps which can be taken to resolve them, the Potomac Conference will consider the mechanisms which are needed for taking these action steps. Where existing mechanisms need to be modified, direction should be pointed toward the modification which are indicated. Where new mechanisms are clearly called for, the type and extent of the new mechanisms should be recommended.

Out of the Conference can come a Potomac strategy for accomplishing the orderly and far-sighted development and management of the basin's resources of land and water, which are vital to the day-to-day living of the basin's people.

This is the challenge to the Potomac Conference.

Table 1 - AGRICULTURE

ISSUES: Objectives	Immediate Action Steps: (Participants)	Longer-Range Action Steps (Participants)
1. INCREASING USE OF PRODUCTIVE AGRICULTURAL LAND FOR DEVELOPMENT AND SPECULATION: Preserve productive agricultural land consistent with the need for Food and Fiber, including multi-use aspects and/or open space.	1. Conduct land-use studies and institute land conversion monitoring programs: (Federal, State, regional, local, private land-owners).	1. Develop and/or enforce existing zoning laws and regulations: (State, local, private land-owners).
2. PRESENT TAX POLICIES: Reform tax system so that farmer may enjoy long-term use of land.	2. Increase participation in soil conservation programs, with special attention on benefits to be gained. Federal and State cooperative programs: (Federal, State, local, private land-owners).	2. Initiate new programs and/or enact new zoning laws and regulations as may be needed for preservation of prime agricultural land: (State, local, private land-owners).
3. SOIL EROSION AND POLLUTANTS WASHED FROM LAND: Adopt practices to control erosion and contaminants (pesticides, fertilizers, etc.).	3. Increase the proper use of fertilizers and pesticides: (Federal, State, local, private land-owners).	3. Support and enact tax reforms, including a uniform system for taxing agricultural land, and tax incentives (especially in regard to inheritance taxes): (Federal, State, local, private land-owners).
		4. Conduct research in development of non-persistent pesticides: (Federal, State).

Table 2 - Forest Resources

ISSUES: Objectives	Immediate Action Steps: (Participants)	Longer-Range Action Steps (Participants)
1. INCREASE IN SINGLE USES (FOR "SECOND" HOMES, RECREATIONAL DEVELOPMENT, ETC.: Preserve as much forest land for "multiple use" as needed for fiber, recreation, wildlife, aesthetics.	1. Increase the number of forest conservation and management agreements: (State, local, privat land-owners). 2. Increase technical assistance for privately owned woodlands: (Federal, State, private land-owners, consulting and industrial foresters).	1. Develop and/or strengthen existing zoning laws: (State, local). 2. Increase programs aimed at meeting recreational needs in forest lands: (Federal, State, regional, local).
2. PRESENT TAX POLICIES: Reform tax system so that forest owner/manager may enjoy long-term use of land.	3. Inventory "second home" needs, markets and availability, as an aid for land use planning: (State, regional, local, private land-owners).	3. Enact legislation to improve present woodland tax assessment system, evaluating intangible benefits accruing to private woodlands and devising tax relief accordingly: (State, local).
3. INCREASED USE OF PROFESSIONAL FOREST RESOURCE EXPERTISE: Use forest resource experts, beginning with early comprehensive planning and continuing into legislation affecting forest resources.	4. Conduct woodland assessment tax structure studies: (State, local). 5. Provide for legislative and resource experts to review legislation prior to enactment: (State, regional, local planning agencies and legislators).	4. Initiate study to determine existing procedures in the several states with a view toward a uniform system for taxing long-term forest land: (States)
4. USE OF IMPROVED FOREST MANAGEMENT TECHNIQUES IN PRIVATELY-OWNED FORESTS: Well-managed privately-owned forests, with increased production and other benefits.		5. Increase Federal funding for forestry information, educational and management programs: (Federal, State, local, private land-owners).

Table 3 - MINERAL EXTRACTION

ISSUES: Objectives	Immediate Action Steps: (Participants)	Longer-Range Action Steps (Participants)
1. MINE DRAINAGE POLLUTION IN NORTH BRANCH AND TRIBUTARIES: Reduce pollution from existing and abandoned coal mining operations to acceptable limits.	1. Complete Corps of Engineers North Branch Study expeditiously and implement recommendations: (Federal, State, local, private owners).	1. Revise existing laws and regulations regarding mine drainage pollution as changing conditions may require and strictly enforce laws and regulations: (Federal, State, local, private owners operators).
2. LAND RECLAMATION: Restore land following mining operations for environmental quality.	2. Issue guidelines for surface coal mining operations: (State, private owners).	2. Revise existing laws and regulations regarding land reclamation as changing conditions may require: (Federal, State, local, private owners).
	3. Increase interstate cooperation and action regarding mine drainage and land reclamation: (States, Interstate Mining Compact Commission).	3. Provide for use of public funds for reclamation on privately-owned lands: (State, private owners).

Table 4 - RECREATION

ISSUES: Objectives	Immediate Action Steps: (Participants)	Longer-Range Action Steps: (Participants)
1. NEED FOR MORE REGIONAL AND URBAN RECREATIONAL OPPORTUNITY (WITH SPECIAL ATTENTION TO WASHINGTON METROPOLITAN AREA: Provide increased number of recreation facilities and areas for entire Potomac region, with special attention to increased urban-oriented recreation in Washington Metropolitan Area.	1. Use density and permit controls for both the river and adjacent grid areas to prevent over-use: (Federal, State, local, private citizens).	1. Give increased attention to urban recreational needs and take steps toward meeting those needs: (Federal, State, local).
2. LACK OF ACCESS TO THE RIVER IN SOME PLACES, AND OVERUSE OF THE RIVER IN OTHERS: Enable all citizens to have access to the river in a manner that protects the integrity of the river and the quality of the recreational experience.	2. Increase multiple use opportunities of existing public lands: (Federal, State, local).	2. Increase acquisition of land for recreational purposes: (Federal, State, local).
3. NEED TO PRESERVE UNIQUE AND FRAGILE AREAS AND TO PROVIDE MORE OPEN SPACE: Protect the unique natural resources of the Potomac Region and establish a interstate Potomac Open Space network through acquisition, easement,and land use management.	3. Enforce existing zoning to direct development for protection of unique and fragile areas, and initiate action on new zoning as required: (State, local, private, landowners).	3. Enact tax incentives for use of privately owned land for recreational purposes, including open space easements: (Federal, State, local, private land-owners).
4. MULTIPLE USE OF EXISTING PUBLIC LANDS: Make full recreational use of existing public lands consistent with other land uses, and the inherent capabilities of the public land.	4. Establish a multi-state recreational planning effort.	4. Increase level of funding for recreational purposes: (Federal, State, local).
	5. Conduct comprehensive recreational planning for entire basin, with all participants: (Federal, State, regional, local, conservation groups, public interest organizations, private citizens).	

Table 5 - URBAN AND MAJOR PUBLIC FACILITIES

ISSUES: Objectives	Immediate Action Steps: (Participants)	Longer-Range Action Steps: (Participants)
1. WATER SUPPLY: Provide long-term dependable water supply for Washington Metropolitan Area and meet other water supply needs in the basin at an acceptable cost.	1. Expeditious completion of Bloomington Lake Project: (Federal).	1. Use of water-saving devices and other conservation techniques: pricing, education, water reuse, etc.: (Federal, State, local private citizens, industries).
2. WATER QUALITY CONTROL: Provide water quality control measures to meet requirements for a "clean Potomac" at an acceptable cost.	2. Initiation of construction of estuary prototype treatment plant: (Federal).	2. Re-consideration of need for Sixes Bridge, Verona, and other reservoirs: given completion of Bloomington and the success/failure of estuary prototype and the installation of emergency wastes intakes.
3. FLOODPLAIN USE AND MISUSE: Manage the use made of the floodplain so as to reduce flood damage.	3. Installation of emergency water intake in upper estuary: (Federal, State, local).	3. Institute and/or strengthen programs for zoning, building codes, floodproofing, flood insurance and floodplain management: (Federal, State, local, private landowners).
4. SITING OF MAJOR FACILITIES: Facility siting be based on environmental, social, and economic acceptability.	4. Continuing emphasis on programs for treating municipal and industrial wastes: (Federal, State, local, industries).	4. Adoption by all basin States of program similar to Maryland Power Plant Siting Program and consideration of extending it to include major industrial facilities: (States, private power companies, industries).
	5. Complete Corps of Engineers North Branch study expeditiously and implement recommendations for control of mine drainage: (Federal, State, local, private owners).	5. Resolve District of Columbia combined sewer problem: (Federal, local).
	6. Improve operation/maintenance of existing treatment facilities: (State, local, industries).	6. Consideration of resource utilization charge, or similar charges: (Federal, State, local, industries).
	7. Make full use prepared and implement the recommendations of floodplain studies by Corps of Engineers and Soil Conservation Service: (Federal, State, local).	
	8. Improve programs for control of sediments and pollutants from land, including trash and litter: (Federal, State, local, private landowners).	

Table 6 - COMMON POTOMAC ISSUES

ISSUES: Objectives	Immediate Action Steps: (Participants)	Longer-Range Action Steps: (Participants)
1. EDUCATION: Promote understanding of Potomac values and issues among citizens and elected officials so that issues and problems can be discussed and solutions found.	1. Increase emphasis on existing education and information programs, through public meetings and all elements of the media: (Federal, State, regional, local, private citizens, conservation groups, service organizations, business, industry).	1. Evaluate effectiveness of existing mechanisms for coordination and institute, as required, a coordination network for the basin: (Federal, State, regional, local, ICPRB, conservation groups, service groups).
2. COORDINATION: Promote close coordination of programs and actions by the various jurisdictions and groups in the basin.	2. Make full use of existing educational mechanisms, such as ICPRB and League of Women Voters: (Federal, State, regional, local, conservation groups, service organizations).	2. Designate a lead agency in each State for coordination of education, programs and actions: (States).
3. NEED FOR BASIN-WIDE GROWTH POLICY: Provide a balanced pattern of future growth for the entire basin so that growth and development are environmentally acceptable, economically feasible and in locations where resources are available.	3. Increase use of existing governmental controls (i.e., local zoning controls, etc.): (Federal, State, local).	3. Develop an interjurisdictional program for growth management in the basin: (Federal, State, regional, local, private interests).
4. NEED TO CREATE A "POTOMAC RIVER CONSTITUENCY": Increase public awareness and education; the Potomac is one system to be used, enjoyed and protected by all and for all.	4. Provide a forum for elected officials to discuss with each other the interstate, interjurisdictional issues.	

APPENDICES

Appendix 1

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Appendix 2

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Appendix 3

SUMMARY OF THE POTOMAC RIVER BASIN COMPACT

The following is a brief summary, article by article, of the proposed Potomac River Basin Compact, modified to include only the States of Virginia and Maryland, the District of Columbia, and the Federal government, with provision that the States of Pennsylvania and West Virginia can enter into it at such time as they desire. It is known as the Potomac Water Resources Regional Compact. Copies of the complete compact may be obtained from the Potomac River Basin Advisory Committee, Suite 1109, 1025 Vermont Avenue, NW, Washington, D.C. 20005, telephone: (202) 737-6250.

Art. 1. Short Title, Definitions, Purposes and Limitations.

This compact shall be known as the Potomac River Compact. The compact region is that portion of the basin within the States and District of Columbia which are signatories at any given time. The purposes are to help meet the essential requirements of the present and future population of the basin, to promote intergovernmental cooperation, to assure and protect desirable developments within the basin, to encourage cooperative and coordinated water resources planning and action by the signatories, and to establish a joint agency to provide for the planning, conservation, utilization, development and management of water resources of the compact region. The duration of the compact is for 60 years from its effective date, and it may be extended for periods of 60 years.

Art. 2. Commission - Organization and Territorial Jurisdiction.

The members of the Potomac River Basin Commission shall be the governor of each signatory State, or his designee, and one member appointed by the President of the United States. The commissioners shall annually elect a chair-

man and vice-chairman. The Commission may maintain one or more offices for the conduct of business. Its territorial jurisdiction shall generally be within the limits of the compact region and it may act outside the compact region when appropriate provided authorities in such areas outside the compact region approve. The Commission may appoint such officers and staff as may be required.

Art. 3. Powers and Duties of the Commission.

The Commission shall adopt and promote coordinated policies for water resources conservation, use, and management in the basin and shall adopt a comprehensive water resources plan for the compact region to effectuate such policies. Within two years of the election of its first chairman and annually thereafter, the Commission shall adopt a water resources program based upon the comprehensive water resources plan. The Commission shall annually adopt a capital budget and a current expense budget. Under its general powers, the Commission may: collect and analyze data; publish reports and disseminate information; establish standards to guide construction, operation and management of water resources related projects; plan, design, acquire, construct, operate, maintain, and regulate any facilities determined to be necessary for the purposes of the compact; negotiate loans and grants; regulate and control diversions and allocations of the waters within its jurisdiction; enter into agreements with respect to water supply; restrict withdrawals of surface and ground waters; acquire, hold, maintain, administer, and dispose of real estate; sell or dispose of any of its products or services; adopt, amend, and repeal rules and regulations as may be necessary; and exercise such other powers as are granted by the compact. The Commission may enter into interbasin agreements. It shall promote and aid the coordination of activities and programs concerned with water resources administration in the compact region and shall cooperate with non-signatory jurisdictions in the basin. With respect to any action

taken under the compact, the Commission shall consider the actual or potential effect of the action upon the waters of the Chesapeake Bay. The commissioners may recommend to the legislatures of the signatories amendments to the compact.

Art. 4. Water Supply.

The Commission may acquire, construct, operate and maintain projects and facilities for the development, storage, and release of water for domestic, municipal, agricultural, and industrial water supply, the protection of public health, water quality control, economic development, improvement of fisheries and wildlife, recreation, flood control, prevention of undue salinity and for other purposes related to the control and use of the water resources of the basin.

Art. 5. Water Quality Management and Control.

The Commission shall assist and encourage signatories and cooperate with non-signatories to prevent, reduce, control and eliminate pollution and may recommend the adoption of standards of water quality for the compact region. The Commission may acquire, construct, operate and maintain projects and facilities as it may deem appropriate for the management and control of the quality of the waters of the compact region.

Art. 6. Flood Protection.

The Commission may plan, design, construct, operate and maintain projects and facilities for flood damage reduction, or may recommend to any governmental agency that it undertake flood damage reduction activities. The Commission may delineate floodplains of the compact region and classify them in terms of frequency of flooding. All plans, programs and operating procedures and all changes to existing or future structures in the Commission-delineated floodplain shall be submitted to the Commission for review and comment.

Art. 7. Watershed Management.

The Commission shall promote sound practices of watershed management throughout the compact region, including soil conservation, the control of surface runoff and prevention of erosion, the improvement of the quality and yield of water, land reclamation and sound land and forest management, and the maintenance and improvement of fish and wildlife habitat. The Commission may acquire, provide, sponsor, maintain and operate projects and facilities necessary or suitable therefor.

Art. 8. Recreation.

The Commission may include water resources related public recreational projects and facilities in its comprehensive water resources plan and in its amenities plan. It shall cooperate with persons and agencies in planning and effectuating coordinated programs for the construction, operation, maintenance, and administration of water resources related public recreational facilities and shall encourage and assist people and agencies in such facilities, providing technical assistance. The Commission, alone or in cooperation with others, may construct, operate, maintain and administer water resources related public recreation facilities and may contribute to the cost of such facilities. The Commission shall not operate nor construct any facility solely for recreation without the consent of the signatory State in which the facility is located.

Art. 9. Other Public Values.

The Commission may recommend standards and act as coordinator for planning, zoning and other actions which will promote balanced development. With the comprehensive water resources plan (Art. 3), the Commission shall develop and adopt an amenities plan for the development and preservation of the aesthetic, scenic and historic values along the Potomac and its tributaries.

In putting the amenities plan into effect, the Commission may acquire such rights as may be necessary. It shall assist local agencies in developing coordinated land use plans for the purposes of the amenities plan and may designate park, recreation, scenic and historic areas within the compact region.

Art. 10. Hydroelectric Power.

It is not intended that the Commission construct and operate hydroelectric generating and transmission facilities as a primary undertaking, but such facilities may be installed in any Commission project, and the Commission may provide means for transmission of hydroelectric power and energy from such a facility. The development and operation of hydroelectric facilities in the compact region by others shall not be barred.

Art. 11. Water Shortages and Emergencies.

When the Commission determines that any area in the compact region faces a water shortage, it shall delineate such area as an area of potential water shortage. It may also delineate emergency areas. Under certain conditions detailed in the compact, the Commission may regulate the diversion, withdrawal, or use of water in water short and emergency areas within the compact region.

Art. 12. Intergovernmental Relations. All actions concerned with the development and management of water resources in the compact region by signatories to the compact shall be in consultation with the Commission, and the Commission shall encourage nonsignatories in the region to coordinate their actions with the Commission's Comprehensive Water Resources Plan and Amenities Plan. Included in this are cooperative services between governmental agencies, agreements with governmental agencies, and local governmental cooperation. The compact shall not be construed to diminish or supersede the powers and functions of the Potomac River Fisheries Commission.

Art. 13. Bond Financing.

The Commission may borrow money for any of the purposes of this compact and may issue its negotiable bonds and other evidences of indebtedness in respect thereto. All such bonds and evidences of indebtedness shall be payable solely out of the properties and revenues of the Commission.

Art. 14. Budgets, Financing and Property.

The Commission shall annually adopt a capital budget including all capital projects it proposes to undertake or continue during the budget year, and shall annually adopt a current expense budget for each fiscal year. Pending remittances by signatories, and payments by persons and jurisdictions, the Commission may borrow from its working capital or other sources to finance its current expense account. The Commission may be granted by transfer or conveyance real and personal property from signatories and other jurisdictions and may acquire such rights-of-way as it may require. The Commission has, under the provisions of the compact, the right of eminent domain. The Commission, its property, functions and activities shall be exempt from taxation by or under the authority of any governmental agencies, but in lieu of property taxes, the Commission, shall, under specified conditions, make payments to local taxing authorities. The compact shall not be construed to authorize a taking without just compensation of any riparian or other vested right.

Art. 15. General Provisions.

The Commission may meet in public or executive sessions, but all official actions shall be taken in public sessions. Every contract in excess of $20,000 for construction or improvement of a facility and in excess of $10,000 for services, supplies, equipment, and material shall be advertised and awarded to lowest responsible bidder. An audit of the financial accounts of the Commission shall be made for each fiscal year. The Commission shall hold

at least one public hearing prior to the adoption of the comprehensive plan, or a major part or revision thereof, and of its annual capital and current expense budgets. Nothing in this compact shall be construed to restrict any power or authority constitutionally possessed by any signatory within its jurisdiction, and nothing shall be construed to prevent any signatory State from enforcing laws or regulations relating to water resources, water pollution, waste disposal, sediment control, or other environmental matters, which are higher than those in force pursuant to this compact. This compact shall become effective, subject to the appropriation of operating funds by the signatories, 30 days after its enactment by the signatories.

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